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Telephony

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SINCE 1901

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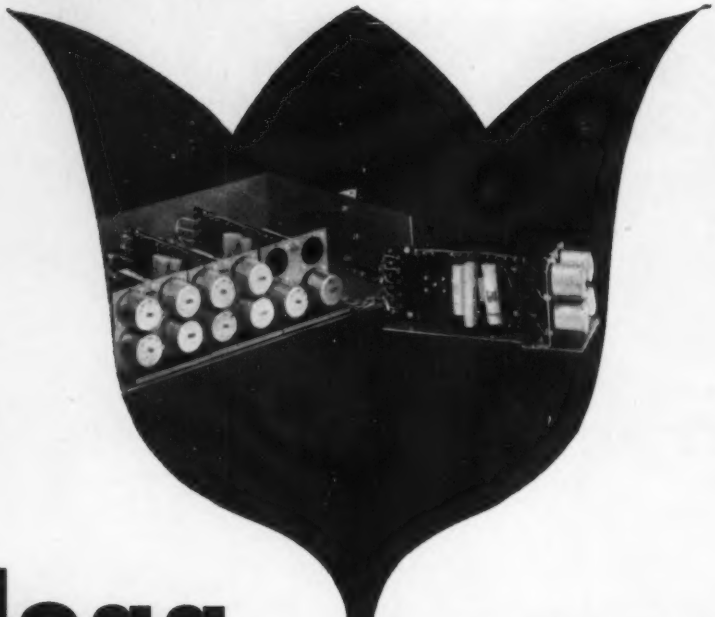

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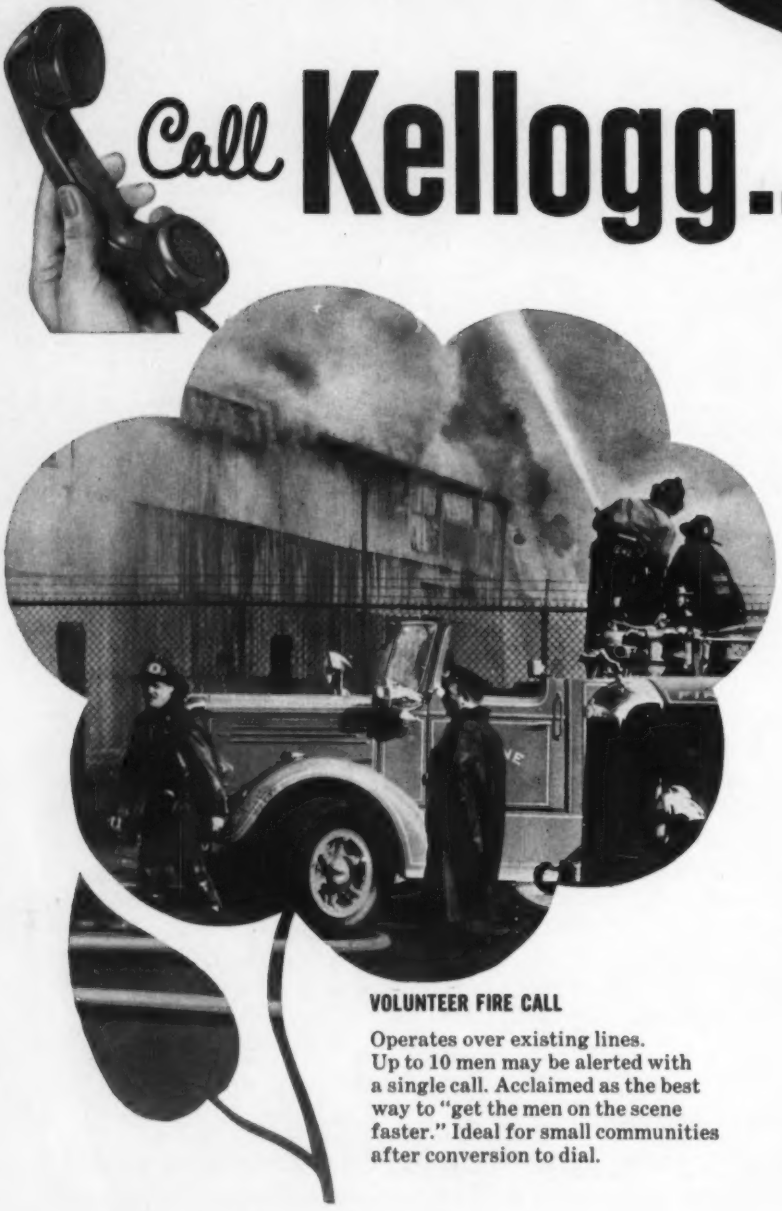

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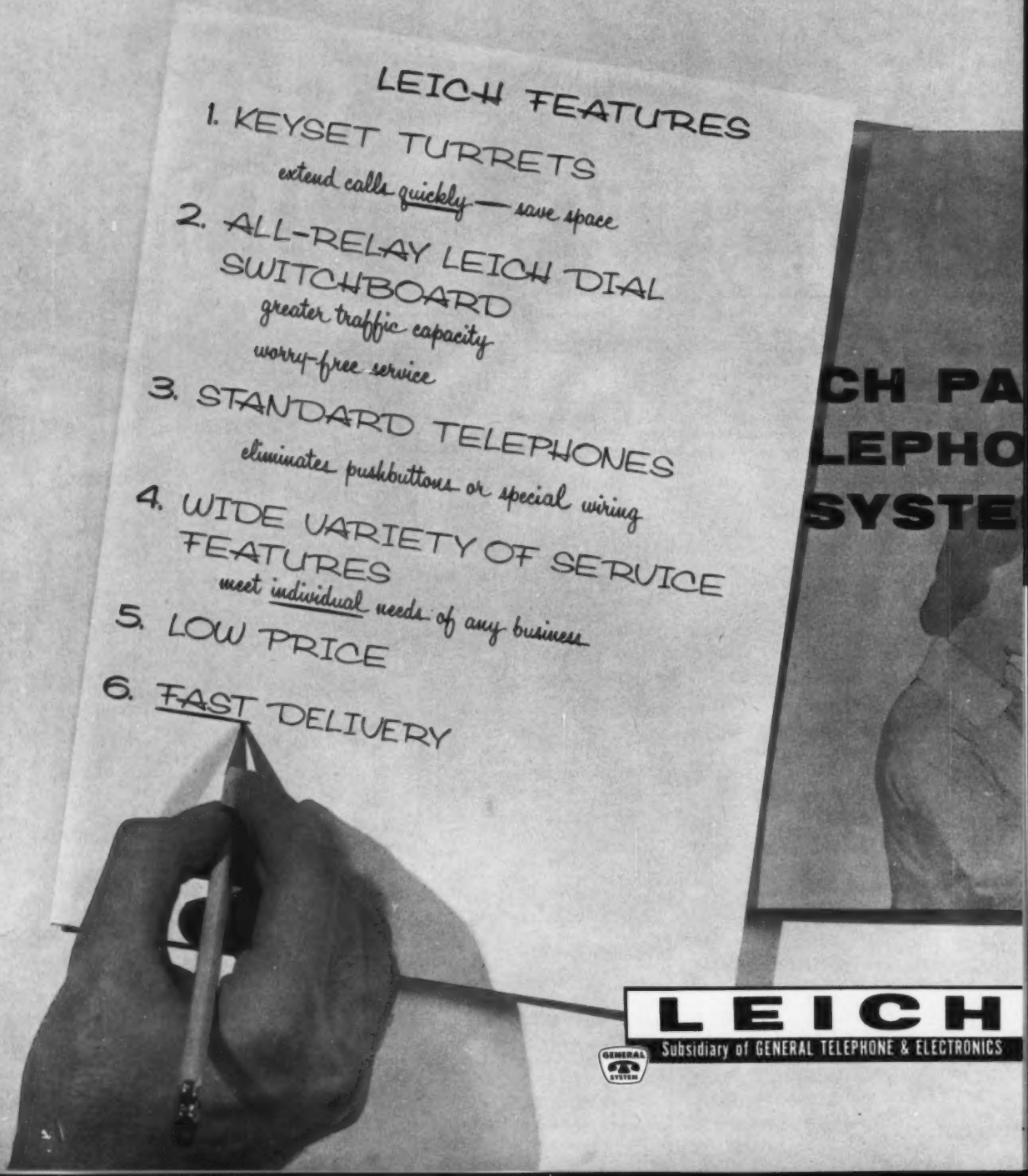

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FLASHES AND PLUGS

WHY NOT SHIFT SCENES? With the increasing conversion to Direct Distance Dialing (DDD), an era in telephone service is passing. Gradually, citizens are becoming aware of its impact on the various areas of American life.

Recently, a concerned theater-goer wrote the New York *Herald Tribune*, and asked, "What's the new technique of dialing going to do to telephone scenes on the stage and screen?"

Evidently reluctant to take leave of the old, familiar patterns of stage business, he commented, "It has all been very well for our hero to snatch up the telephone and say, 'Long distance, give me Phoenix, Arizona.' "

Indubitably, he contends, the theater audience knew what the actor was doing, and realized also when the connection had been completed.

Even the business of dialing a local call, involving seven digital movements, is identifiable, for the audience watches and counts.

To call Phoenix the new way, however, he pointed out, there are 10 digital movements followed, on some calls, by a dialogue between the dialer and the telephone company, to get the number against which the message will be charged. This, says he, is quite a time lapse on stage. What to do?

As for TV, no problems there, because a 20 to 30-second commercial message will probably be read in the interval, he says.

•

SIZZLE IN THE SALE. The Associated Press reported that a Lockport, N. Y., telephone subscriber became so irritable about conditions on his party line that he tore the telephone off the wall and went straight to the telephone office with the instrument under his arm.

But company officials were not too upset. The company wound up selling the man one-party service, an extension, a night lamp, and two color telephones.

•

NOT THE WHOLE CLOTH. Archbishop William E. Cousins tells a telephone story of the days when he was a bishop in Peoria, Ill.

After playing golf one day with three companions, one by one, the men telephoned their wives from the clubhouse. The timely alibi each offered for his absence from home went something like, "I'm tied up with the bishop for dinner. You know how it is—one of those things."

It turned out to be so perfect an alibi, he reports, that long after he had gone to bed, his golf companions were still enjoying a large evening.

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CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

ABC OF THE TELEPHONE—PART 92 20
By Frank E. Lee

GOOD ECONOMIC HEALTH GIVEN ATTENTION AT ROCKY MOUNTAIN CONVENTION 24
By Dianne P. Drucker

BELL LABORATORIES CONSTRUCTING OUTER SPACE TELEPHONE TERMINAL 26

THE PLANT MAN'S NOTEBOOK 27
By Ray Blain

NEED FOR BETTER BUSINESS CLIMATE STRESSED AT ARKANSAS MEET 28
By Lois Kehoe

COURTS AND COMMISSIONS 29

NEWS ON NEW PRODUCTS 40

HELPFUL LITERATURE 54

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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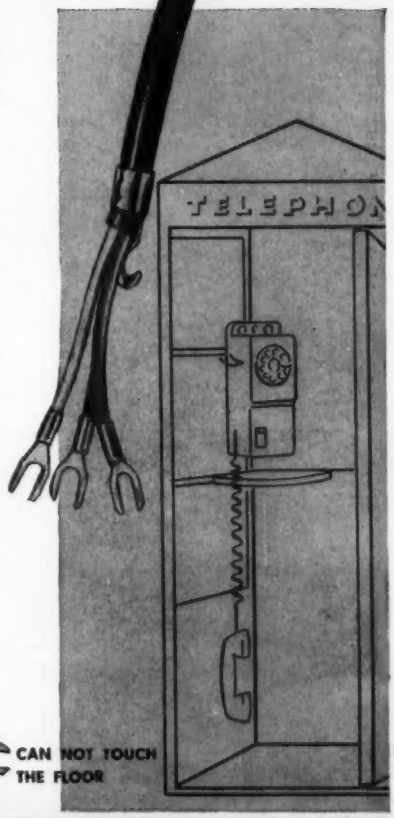

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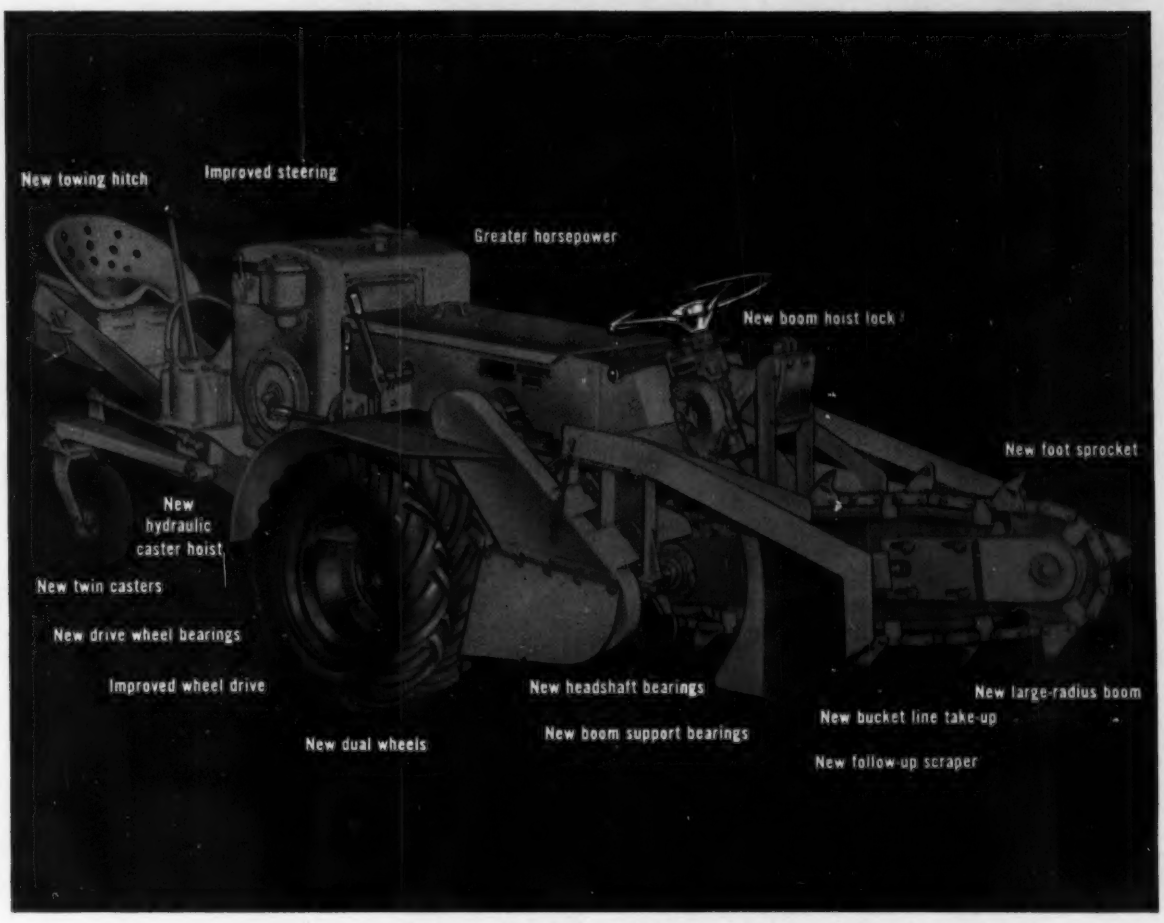

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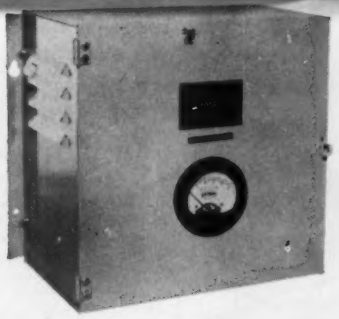

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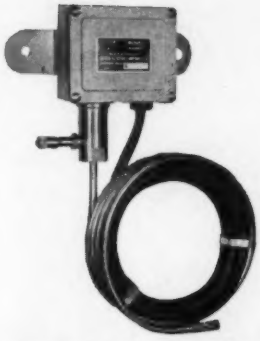

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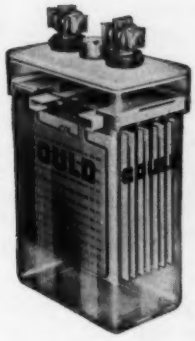

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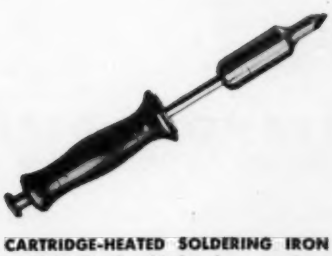

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

British give socialism an election punch. Welch sees nationalization becoming a dead issue, but not necessarily so in the United States. Supreme Court decision coming on whether employes can be fired if they refuse to contribute to union fund whose purpose may be a political one with which they're not in sympathy. FCC probably clear of responsibility for policing TV quizzes.

THIS Washington writer could rightly be criticized for trying to play outside of his own ball park, if he tried to make any serious analysis of the British election returns. All public utility people, of course, have an understandable interest in public reaction to socialistic politics, as evidenced at the polls.

So, the recent sweeping victory of the Macmillan Conservative government had some ideological overtones which deserve attention on this side of the Atlantic in public utility circles. It will be recalled that the Laborites, during their last term in office (1945-50) succeeded in socializing what was left of the utility services of Britain—gas, electricity, and public transport—in addition to coal mining. British telephone service had already been nationalized 35 years earlier.

And only some fast political footwork and last-ditch holding maneuvers prevented the British steel industry from actually falling under the yoke of nationalization which had been authorized by act of Parliament. Winston Churchill's government came back into office in 1950 just in the nick of time to return the British steel industry to its private owners and provide about the only known example of successful "denationalization" in modern history.

It has always been a standard assumption among economists that nationalization, or any other form of socialization, is virtually irretrievable. Once the golden eggs of private enterprise have been scrambled into a public ownership omelet, there is seldom power equal to the task of returning such a business to its previous state.

And it must be confessed that there was not much evidence to the contrary, during the two periods in office of the British Tories, following the return of Churchill in 1950. Neither Churchill nor his successors, Eden and Macmillan, even talked about the idea of "denationalizing" the British utility services. What's more, the other welfare state features ushered in by the Labor party during the 1945-50 interim were continued by the Conservative government. And they are generally reported to be quite popular. Socialized medicine, for all the Tory digs about subsidized dentures and hospital vacations for the masses, continues today more than a decade after being installed by the Laborites.

In England, there appears to be a paradox in that a large body of public opinion is in favor of Labor party reforms, but *without* Laborite administration, and—at the same time—in favor of Tory administration without adopting Tory principles. In other words, the Britishers seem to think that if certain industries had to be nationalized, notably the public utilities (and they *were* nationalized under the Laborites), the administration of them would be more cautiously and efficiently conducted by a conservative government, which had no enthusiasm for the idea in the first place.

Maybe it has worked out that way, to the satisfaction of a majority of Britons. With the big play that Macmillan gave foreign policy issues in his recent election campaign, however, it would be difficult, if not presumptuous, for an American observer even to try to figure just what degree of effectiveness the nationalization issue played in the final results.

No More Nationalization of Industry!

One thing is certain—taking both of the British parties at their own word—a majority of Englishmen are willing to call a halt on socialization for the present. The workers themselves have come to find out that when the government takes over an industry, such as the public utility industry, it is not any more of an indulgent employer than the former private owners. In addition to that, the traditional right to strike is seriously compromised when an industry is nationalized.

The British public, as distinguished from the working classes, likewise seems to have lost its taste for further experiments in nationalization. The experience of these government ventures into private business so far has not been any financial success. On the contrary, coal and transport have been running up terrific deficits. The gas service has been losing economic

ground and the electric service has been holding its own, due mostly, it is suspected, to trick bookkeeping and shortchanging the depreciation reserve.

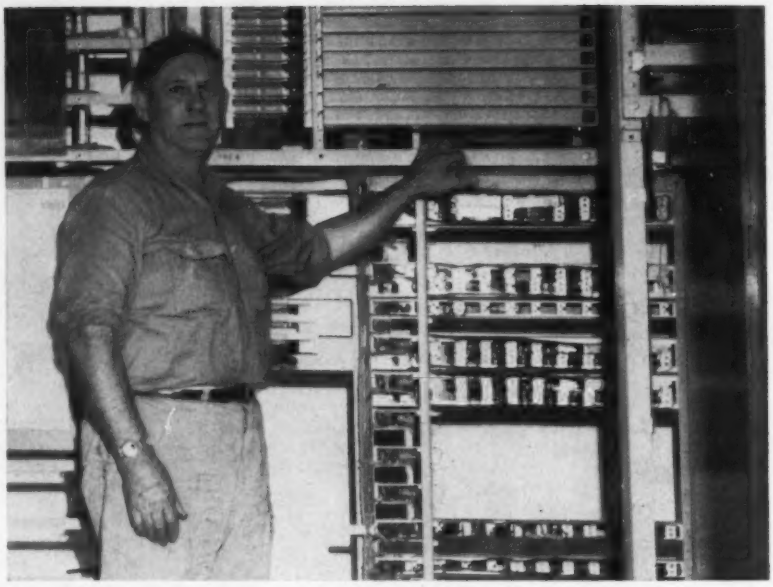
A considerable number of Labor party members themselves sensed this public disillusionment with nationalization of industry. Only the die-hard left wing wanted to make an all-out pitch on a public ownership program for further industrial nationalization. And it is noteworthy that the left wing, as distinguished from the right wing of the Labor party, suffered more casualties in the recent election. But, again, that might be due to the confusing intervention of foreign policy. The leftists were quite critical of the United States leadership while the right wingers were more disposed to go along with Macmillan's continuation of strong ties with America.

Considering the third successive loss in a general election by the Labor party, will the program for further industrial nationalization in Great Britain now be scrapped entirely, even by the Laborites? And will the Labor party, as a party, be eclipsed by the resurgence of the middle-of-the-road Liberal party?

The Liberals made a surprisingly good showing on the Oct. 8 ballot. The Liberals have never had as much taste for socialization as the Laborites. So if the future pattern of British politics is to be oriented toward Tory versus Liberal, rather than Tory versus Labor, further nationalization of industry could become a dead issue. It already seems to have developed political halitosis.

This is not to suggest that this apparent shift in public opinion away from support of nationalization of industry will have any direct effect on public opinion in the United States. American voters have never consulted British opinion in voting their own preferences on domestic issues. But the disillusionment which prevails in Britain might also be operating in the United States. British industry has come back remarkably well, under the Conservatives, following World War II; and the people of England seem to think that business should not be discouraged by further government acquisition or restriction.

If there is a similar wind now blowing in the United States, that should be an encouraging omen for public utility industries on this side of the Atlantic. During the last three or four years the political winds here at home seemed at times to be blowing in the other direction—judging by our election results where the so-called public power issue has been a factor. Maybe the British election augurs a turn to the right here in the United States. Maybe it does not mean a thing. We shall have to wait until 1960 to get the real word.



Proud of his citation from Gov. Nelson Rockefeller is Herbert O. Lewis, owner-manager of the Crown Point (N. Y.) Telephone Co., who served as co-chairman of recent celebration commemorating 350th anniversary of discovery of region by white men. In this area, rich in history of the French and Indian War and the American Revolution, Mr. Lewis points to his company's own history as second in area to have dial service. The Crown Point company includes in its historic relics a 1906 directory with no numbers—just a list of around 40 subscribers and their residence or business service connection.

Stand By for Labor Decision

Greatly overshadowed by the bombast of other spectacular events in and out of Washington, the U. S. Supreme Court quietly assembled early this month for its regular fall term. But there is one "sleeper" on the court docket which could well explode plenty of headlines before it is decided. In fact, it might cause as much of a furor in union labor circles as the recently enacted Griffin-Landrum amendments to the National Labor Relations Act.

The question posed in this case is whether certain railroad employes in Georgia can be fired, under a union shop agreement, because they refused to contribute to a union fund which was allegedly designed to be used for political or ideological purposes to which these members individually objected.

The background is a little bit complicated, but what the issue boils down to is whether a union can make a Republican member pay dues or other assessments into a fund to help elect Democratic candidates—or vice versa. It is a well-known fact that the AFL-CIO political action organization (known as COPE) gets its financial sinews from such assessments.

If the Supreme Court should finally decide that such assessments cannot be enforced where individual members refuse to pay up under penalty of losing their jobs, a good deal of steam may escape from the AFL-CIO political steam roller in the future.

The way this case came about goes back to 1951. At that time Congress amended the Railway Labor Act so as to permit the railroads and the unions to make union shop agreements. When this authority was tested in the so-called Hanson case, the court upheld the amendment, but made the following reservation:

"Judgment is reserved as to the validity or enforceability of a union or closed shop agreement if other conditions of union membership be imposed or if exaction of dues, initiation fees or assessments is used as a cover for enforcing ideological conformity or other actions in contravention of the First and Fifth Amendments."

On the basis of this reservation, several employes of the Southern Railway Co. complained that the union to which they were compelled to belong (in order to hold their jobs) was misusing union funds. The alleged misuse consisted of spending the dues for political purposes which were repugnant to the views of the complaining members.

The Georgia Supreme Court upheld the right of these dissenting members. The state court took the view that it is an unconstitutional invasion of a citizen's political liberties for any employer or union to deprive him of his employment unless he contributes to a cause which is objectionable to him. This is the issue in what is known as the Looper case, which the U. S. Supreme Court will probably decide during the coming term. That decision may well have an important impact on union political activity in the presidential campaign year of 1960, which is just around the corner.

Quizzing the Quizzers

Is the Federal Communications Commission responsible for the recently revealed shenanigans of the late-but-unlamented quiz programs on TV? Is anybody responsible under the present law? And if there is no law on the subject, should there be one? Those are the questions for which the House Subcommittee on Legislative Oversight has started to find answers. But like the battered cock sparrow in that old joke about the live bird flying into a "red-hot badminton game," Representative Harris and his colleagues on the House subcommittee are in for plenty of excitement before they come to the end of "this thrilling episode," as they say on the TV serials.

The interest of the telephone industry in this matter is somewhat oblique, if not remote. But we can say this much: Under the statutory ground rules, as now drawn, the FCC will probably be able to stay clear of any past responsibility for the phony quiz shows. Furthermore, it looks as though Representative Harris and his fellow committee members, having once opened this Pandora's box, will have their hands full for the rest of 1959, if not well into the coming year. And that in turn is likely to mean that the Harris subcommittee is going to have mighty little time left for the less spectacular (but no less important) work of studying the efficacy of regulatory practices and procedures by the FCC and other commissions.

Maybe the FCC is entitled to this break under the law of averages, if nothing else. The FCC has been taking an unmerciful lambasting at the hands of the House investigating group for the past two years, while the other federal commissions have been sitting out in the waiting room, so to speak.

But on this question of "cribbing for dough" on the TV give-away contests, the FCC would seem to have a very clear and compelling alibi contained in the statute under which it operates. Here is the text of Section 326 of the Federal Communications Act of 1934, which is still in effect, as originally enacted:

Presenting winners of Junior Achievement scholarships with their checks is Harlan W. Holmwood (third from left) executive vice president of the General Telephone Co. of California, and president of Junior Achievement in his area. Recipients of the awards, which total $1,500 are, left to right, William Cathcart of Glendale, Pauline Wutherich of Inglewood, Joanne Forest of Rolling Hills, and Elliott Olson of Encino who was president of the Olympic-Tel. JA. Co., sponsored by the General company. Not shown is Susan Osterstock of Hawthorne, another recipient.

"Nothing in this Act shall be understood or construed to give the commission the power of censorship over the radio communications or signals transmitted by any radio station, and no regulation or condition shall be promulgated or fixed by the commission which shall interfere with the right of free speech by means of radio communication.

"No person within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication."

Obviously, there is nothing in this language that would give the FCC any power to change or influence the content of any program broadcast by a TV licensee unless it was objectionable on grounds of obscenity, profanity, etc. The fact that some of the programs might be dishonest (from the standpoint of operating under false pretenses) would not appear to fall under its restrictive authority. And if the FCC tried to interfere for that reason, it would probably be prevented from doing so by a court order obtained by the TV operator.

There is another section of the law —Section 316—which prohibits the use of television or radio station facilities for broadcasting lotteries or gambling information, or any materials which might be used for lotteries or gambling purposes. But there was nothing in the rigged TV programs which could honestly be said to be a gambling operation.

On the contrary, the whole complaint seems to be that while the contestants were supposed to be taking their chances on prize money, actually they were only going through the motions of a rehearsed phony act, the outcome of which was a sure thing.

The only other possible language in the Federal Communications Act which might apply would be Section 314, entitled "Preservation of Competition in Commerce." But the relationship here is quite remote. It might be conceivable for one network to obtain a preference on the part of the public over another network by unfair means through such phony contests. But the unfair competition provision of the Federal Communications Act seems to be intended to apply to telephone and telegraph companies, and all commercial radio or cable companies transmitting intelligence for hire.

So where does that leave the FCC on the rigged TV contests? It seems to leave it back where we started—pretty much in the clear. If the FCC had tried to step into any of these situations, on complaint or for other reasonable cause, the networks would have been the first to cry "foul," and say that the FCC was trying to censor programs or interfere with freedom of speech and all that sort of thing. And the chances are good that some court would have agreed and issued an injunction.

As a matter of fact, the FCC has been criticized in by-gone years for even interfering to the extent of sug-

(Continued on page 48)

A B C of the Telephone

by Frank E. Lee

INSULATORS are used at crossarms and pole brackets to provide a way to fasten open wire at each pole and to maintain the high resistance spacing between the wires. Internal threads enable an insulator to be placed on a pin or pole bracket like a cap is placed on a mason jar. The bottom or skirt of the insulator flares outward. As a result, the point of contact with the pin or pole bracket is well up inside the insulator.

A cut-a-way section of typical glass insulator with a single petticoat is illustrated in *Fig. 1A*. In this instance, the petticoat is the inner surface of the flared section at the bottom of the insulator, below the threads. The skirt is the outer section of the insulator below the bottom groove. The leakage path extends from the bottom groove, around the lower edge of the insulator, then up to the point where the lower thread contacts the pin or bracket.

Atmospheric conditions, such as fog and high humidity, may cause some leakage across a single pettiskirt insulator. A double pettiskirt insulator, shown in *Fig. 1B*, provides a longer leakage path and can be used to good advantage in the more critical atmospheric areas.

In a sense, the insulator is like a waterproof cap over the pin. During a rainstorm the inner surfaces of the insulator seldom, if ever, become wet or damp. This is especially true of the uppermost area immediately below the point of contact with the pin or bracket. Thus, the wire is well insulated from the pin or bracket in wet weather as well as dry.

Most insulators are made of glass, although unbreakable types may be made of hard rubber, or some similar material. Materials used in insulators have extremely low conductivity, and thus have excellent insulating qualities ideally suited for open wire insulators.

Typical Insulators

Typical glass insulators are illustrated in *Fig. 2*. The application of the various insulators shown in the illustration is as follows:

Pony. This is a light weight single groove, single petticoat insulator for rural telephone lines. The skirt is long and straight to protect the pin from rain.

Dog Pony. This is a double groove single petticoat insulator for use on exchange lines. The extra groove, at about the center of the skirt, is used as the pole attachment for drop wire lines to subscriber premises.

Exchange. This insulator is comparatively light in weight and is generally used on exchange and rural lines where the span length does not exceed 150 to 175 feet. The square grooves can also be used for twisted pair wires.

DpG-DP. This is a double petticoat insulator with deep grooves and is used on rural telephone lines. This type insulator is especially suited for areas where fog and high humidity are prevalent.

DP. This is a double petticoat insulator with a single square groove. Insulators of this type have a long, smooth leakage path on the inner petticoats. These heavy duty insulators are used on long span construction.

TpG-WU. This insulator is similar to the type DP. Notice how the DP skirt flares outward whereas the skirt

Part 92. OUTSIDE PLANT CONSTRUCTION—Section 18. Open wire lines—use of insulators, and protection during installation.

Section 1. Planning of additions to outside plant (TELEPHONY, Nov. 17, 1956).

Sections 2, 3 and 4. Pole lines and poles (TELEPHONY, Nov. 24, Dec. 1 and Dec. 8, 1956).

Sections 5 and 6. Guy wires (TELEPHONY, Feb. 16 and 23, 1957).

Sections 7 and 8. Anchors (TELEPHONY, Apr. 27 and May 4, 1957).

Sections 9 and 10. New cable facilities (TELEPHONY, Sept. 14, 1957 and Mar. 8, 1958).

Sections 11 and 12. Fastening aerial cable to messenger strand (TELEPHONY, Aug. 9 and 16, 1958).

Section 13. Application of lashing rods, lashed cable supports, and typical aerial cable arrangements (TELEPHONY, Apr. 25, 1959).

Section 14. Self-supporting cable and wiring at aerial cable terminals (TELEPHONY, May 2, 1959).

Sections 15 and 16. Open wire lines (TELEPHONY, Aug. 22 and 29, 1959).

Section 17. Brackets and crossarms for open wire lines (TELEPHONY, Sept. 5, 1959).

of this insulator is drawn a little tighter at the bottom. The top groove is used for tying line wires in hilly country.

Toll. The name of this insulator is somewhat misleading because it is used on exchange and rural lines, where the average span length is between 175 and 225 feet, in addition to toll and trunk lines that do not exceed 10 miles in length. This insulator has about as long a leakage path as possible with a single petticoat.

TW. This insulator has well-defined grooves and is used on tandem bracket transposed lines of any span length. It also may be used on single insulator transposed exchange or rural lines if the span length does not exceed 150 feet. The use of tandem transposition bracket will be covered in a coming section of this series on outside plant construction. A tandem bracket uses two insulators whereas only one insulator is used at the single insulator transposition.

TS. This insulator is used on toll circuits equipped for carrier operation. The line wire is generally tied in the bottom groove except at transposition points where the upper groove is used to provide clearance between the wires of a pair.

Mid-Span. The mid-span insulator is used for mid-span and point transposition brackets. The insulator combines light weight with ruggedness. Four of them can be suspended in an aluminum bracket for mid-span transpositions. These insulators are used on long toll lines where transpositions are required for high frequency carrier circuits.

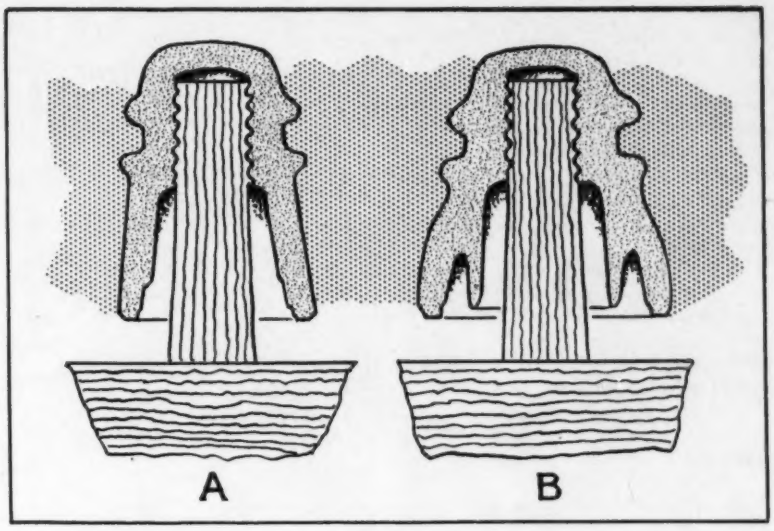


Fig. 1

Insulator Pins

As mentioned previously, insulator pins, sometimes referred to as crossarm pins, are made of wood or steel. Wooden pins fit into holes drilled in the crossarm and are staked in place. Usually the pin is staked by driving a galvanized nail into the crossarm and through the pins.

Steel insulator pins extend through the crossarm and are fastened with a nut and washer. Steel pins have the same insulator thread as wooden pins. As a result, insulators can be used interchangeably on either wooden or steel pins.

Location of Wires on Crossarms

Wires should be placed on crossarms in accordance with a definite plan or pattern. Perhaps the most important part of the plan is the location of a particular pair of wires. In most instances, the wires of a pair should use the same set of pin positions through-

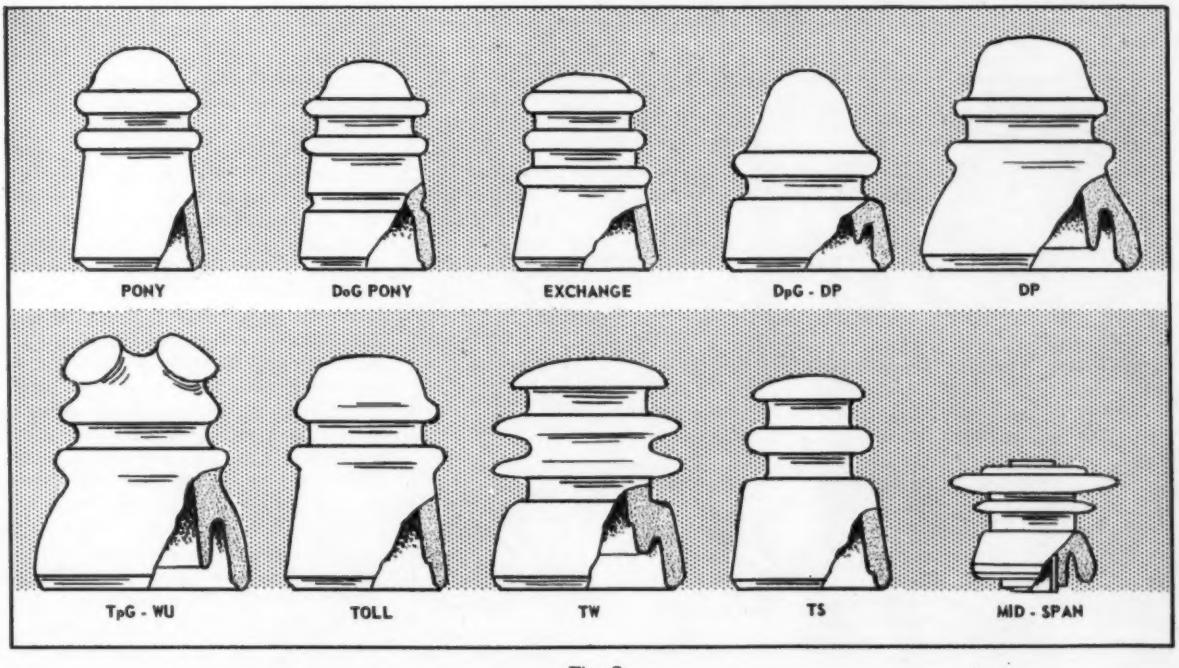


Fig. 2

out the length of the run. For example, if a pair of wires is placed on pins 3 and 4 on the first pole, the same pair of wires should be placed on pins 3 and 4 of every crossarm throughout the length of the circuit.

This pattern may be altered somewhat if the various pairs of wires are transposed in addition to transposing the wires of a pair. In these cases, the pairs are transposed in accordance with a definite pattern. To locate a pair of wires on a given pole, determine the pole number and refer to the transposition pattern for the pins used on the specific pole.

Toll circuits generally are placed on the upper crossarms where toll and exchange circuits are placed on the same poles, as shown in *Fig. 3*. One reason for this is the amount of work to be done on the circuits after they are installed. Changes would more likely be made on exchange lines. These lines would be more readily accessible on the lower crossarms. This would also eliminate the need to climb through or work through the toll circuits, as would be the case if toll circuits were placed on the lower arms.

The longest and most important circuits of a group are placed on the uppermost crossarms used for the group. This is in keeping with the reasons why toll circuits are placed above exchange circuits—the wires in the upper positions are subjected to less possible interference under usual conditions than wires in lower positions.

The position of the wire on the insulator is also of importance. As a general rule, the wire is placed on the

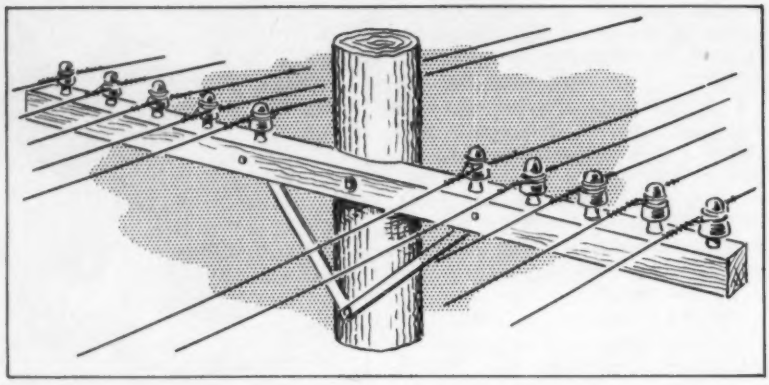


Fig. 4

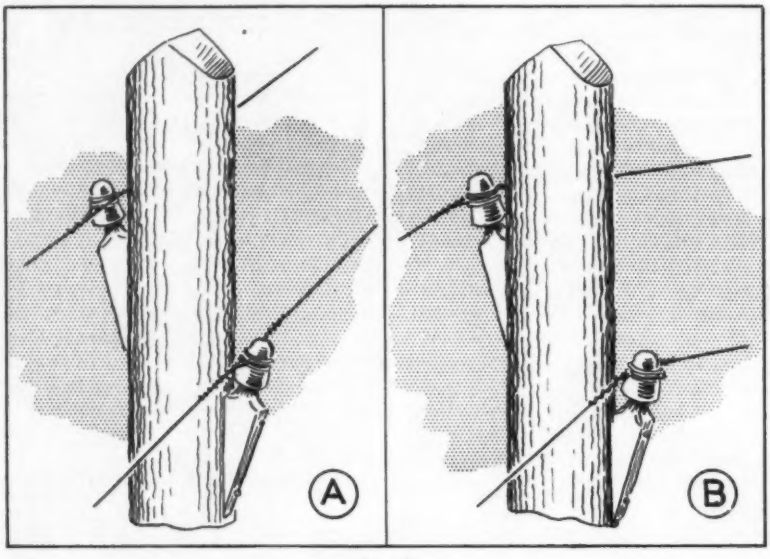


Fig. 5

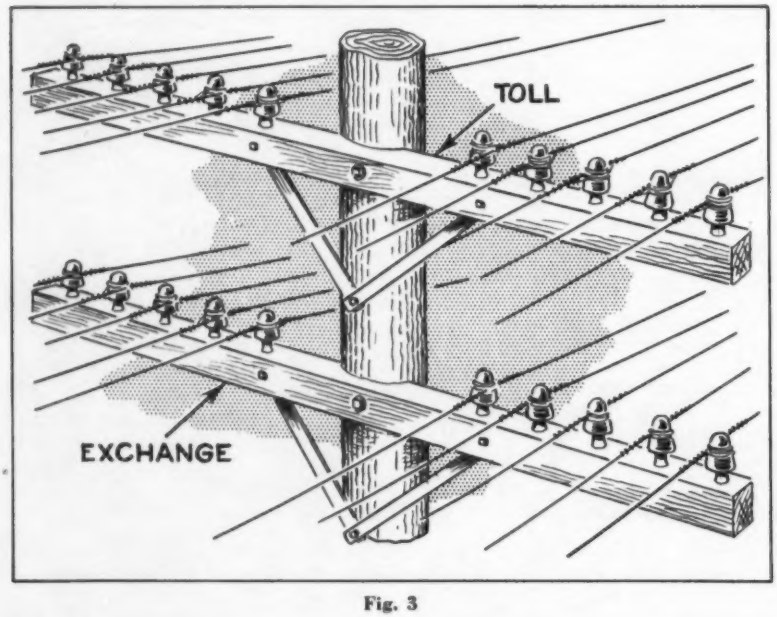


Fig. 3

side of the insulator nearest the pole. A wire on the inside of an insulator would generally fall to the inside of an insulator pin if the insulator were broken accidentally. If the wire was on an outside pin this would prevent the wire falling from the crossarm. This example applies to lines on pole brackets perhaps even more than to lines on crossarms.

A few inches additional climbing space can be provided by placing the inner wires on the outside edge of the insulators. This would provide at least 4 inches more space if the insulators were only 2 inches in diameter where the wire is tied. *Fig. 4* illustrates how wires are tied to insulators on a crossarm to provide additional climbing space.

Wires are tied to the inside of insulators on pole brackets on other than corner poles, as shown in *Fig. 5A*.

At corner poles, the wires are placed where they will pull against the insulator. This adds to the strength of

the line because the stress is against the insulator and not against the tie wire. The position of the wires on a bracket equipped line where there is a pull against the pole is shown in *Fig. 5B.*

Protection of Wire During Installation

An open wire is exposed to lightning, high voltage line, induced current, or static charge hazards while it is being installed, the same as when it is installed and working. The easiest to understand of these hazards are those caused by lightning and high voltage lines. There is little question that lightning striking the line, or a direct contact with a high voltage line, would create an exceptionally hazardous condition. This is true of any type of wire or cable and is not a hazard of open wire alone.

The most difficult to understand of the hazards are induced currents and static charges that may be impressed on the line. The chance of an induced current being introduced on a line is present whenever a line parallels a high voltage power line for any distance. The greater the distance the two lines are in parallel, the greater is the possibility of foreign voltages being induced on the open wire line.

Foreign potentials or voltages may develop to extremely hazardous levels, or they may be of the surprise variety —perhaps not strong enough to cause injury by themselves, but high enough to surprise a lineman. This might cause him to lose his grip on a pole if he touches the wire and a grounded object —like a guy wire.

Static charges are caused by minute particles of dust and similiar foreign particles continually moving through the atmosphere. The electrically charged particles deposit a charge on a line wire or similar objects they strike while moving through the air. The danger increases as the charge on the line increases. An accidental contact could cause a momentary shock similar to that possible from the lower grade induced voltages.

A considerable degree of protection is provided by properly grounding an open wire line when it is being installed. A good ground will provide additional protection against high voltage hazards as well as against the hazards of induced currents or static charges.

The ability of the ground to provide protection against the high voltage hazards of power lines is governed by:

(1) The resistance of the ground to which the line wire is connected.
(2) The voltage of the power line.
(3) The operating characteristics of the power system circuit breakers, fuses and similar overload protection devices.

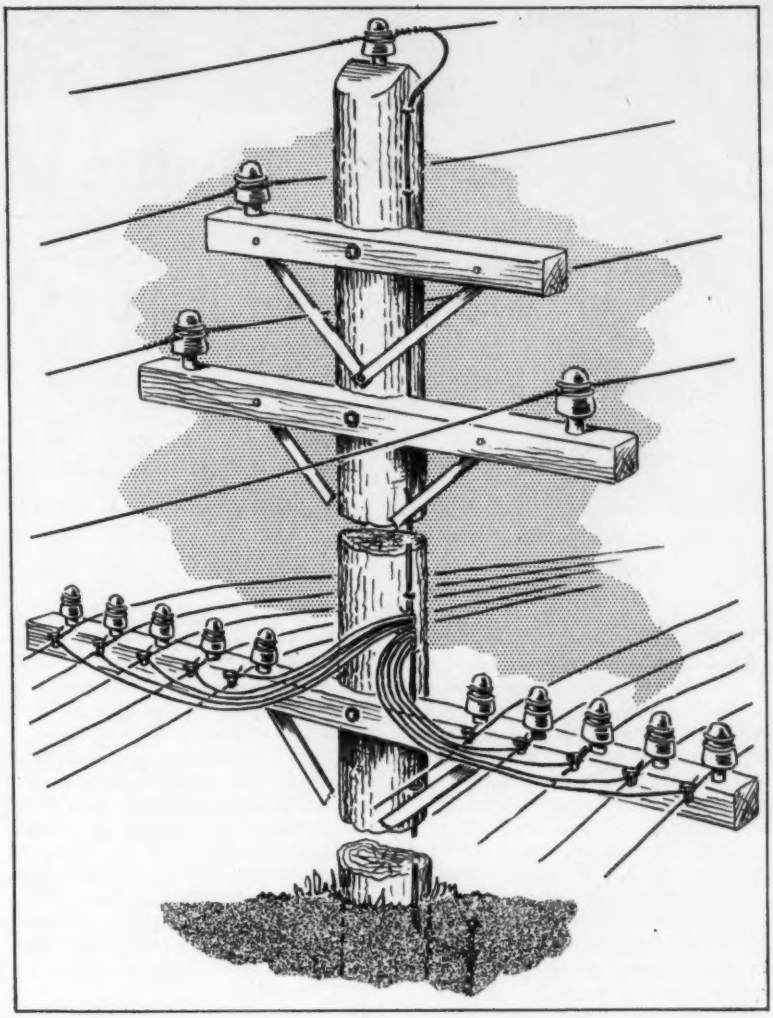


Fig. 6

The quality of the protective ground is the only element in this group of variables over which the telephone company has any direct control. The other two factors are important—but only to the extent that they spell out the degree of hazard. For example, a 69 KV or 220 KV transmission line (69,000 or 220,000 volts) has many times the potential of a 2.3 KV (2300 volts) distribution line. However, the possibility of the open wire line coming in contact with a distribution line is much greater than the chance that the open wire will come in contact with the higher voltage transmission line.

The lower voltage power distribution line usually is placed on relatively short poles and very often on joint use poles with open wire lines. High voltage transmission lines generally are built along private rights-of-way with wooden pole H-fixtures or high steel towers. The potential hazard of the high voltage transmission line should never be disregarded. However, the greater problem lies with the distribution lines operating at lower, but still highly dangerous, voltages.

Perhaps the greatest immediate potential danger of high voltage transmission lines is the possibility of induced voltages in open wire lines in parallel for distances of a quarter mile or more.

A low resistance ground for open wire can be obtained from any one or a combination of the following:

(1) *Multi-grounded neutral of the power system.* Connections to the multi-grounded neutral should be made by power company linemen. However, the telephone lineman, usually, is authorized to make connections to existing vertical ground conductors of the multi-grounded neutral system.

(Continued on page 49)

Good Economic Health Given Attention At Rocky Mountain Convention

By Dianne P. Drucker

THE IMPROVEMENT of a telephone company's financial picture in all respects—through increased sales, more efficient operation, easier access to capital, and a better rate of return—was covered in talks given at the meeting of the Rocky Mountain Telephone Association on Sept. 16 in Salt Lake City, Utah.

H. B. Norman of Gunnison, Utah, presided with 225 in attendance.

Utah's Governor George D. Clyde keynoted the meeting by commenting on his recent visit to Russia.

Back to this country, the United States' growth forecast and potential were described by H. C. Martin, assistant vice president of the Mountain States Telephone & Telegraph Co., in his talk "Sell 'Em in the Sixties."

He quoted an economist who said that if we are to keep pace with our productive ability and technological development, we can accomplish as much in improving our total living standards in the next 10 years as we did from colonial times to 1939.

Mr. Martin feels that this growth atmosphere leaves the telephone industry with a great opportunity to expand as it never has before. He said:

"Your organization (Rocky Mountain Telephone Association) and the Bell System companies I am sure realize that we have barely scratched the surface on what can be sold to give both business and residence customers the kind of service and equipment they would enjoy having."

Advertising must play an important role in this expansion, Mr. Martin stated. He emphasized that there is no longer any feeling among consumers that telephone companies don't need to advertise and he cited a survey of subscribers in which seven out of 10

Officers and directors of the Rocky Mountain Telephone Association are (SEATED, left to right): Grid Rowles of McCall, Ida.; Ward Blazzard of Kamas, Utah; Victor Redman of Pagosa Springs, Colo.; Donald Dickson of Rupert, Ida., vice president; H. B. Norman of Gunnison, Utah; C. A. Blakeney of Carlsbad, N. M., president; J. E. Tipton of Espanola, N. M.; and Dick Baker of Coeur d'Alene, Ida., secretary-treasurer. STANDING, left to right, are: D. A. McLean of Denver, Colo.; C. W. Haas of Big Timber, Mont.; P. B. Corbin of Monticello, Utah; Rulon Callister of Delta, Utah; C. M. Hart of Kingman, Ariz.; L. J. Hitchens of Ruidoso, N. M.; and Charles McLean of Kalispell, Mont. Absent when the picture was taken were Earle Crandall of Pinedale, Wyo.; E. J. Jennings of Holbrook, Ariz., and Floyd L. Reyher of Haxtun, Colo.

Highlight of the convention banquet was the presentation of service pins to past presidents of the Rocky Mountain Telephone Association. They are shown at the head table with their wives.

said that the telephone company should advertise. He reported that "sales advertising can and does improve customer attitudes toward cost of service."

As for size of company, Martin quoted an excerpt from a USITA merchandising bulletin which stated that the size of company has no strong bearing on extension development. Many small companies have done better than some of the larger ones.

He described his company's yearly advertising and merchandising campaign as follows:

"We have two extension-color campaigns a year. The first, starting in April, ties in with the national promotion on kitchen extensions. We run the campaign for three months pushing extensions as Mother's Day and Father's Day gift suggestions in May and June.

"In October, we start a fall campaign on bedroom extensions leading to active Christmas gift promotion in late November and December.

"The cumulative effect of a three-month campaign is excellent. We feel it has much more merit than trying to 'rev' up for only one month at a time.

"In other months of the year, our general promotional advertising emphasis is on residence long distance."

As for promotional material, Mr. Martin said Independents can get it from the USITA marketing committee. He mentioned USITA's national advertising as providing a good backdrop for sales efforts. He also noted that advertising material is available to Independents from the Telephone Advertising Institute.

Describing the new attitude of telephone companies, Martin stated, "We began acting more and more like any other competitive business in the 50's and we have to keep thinking that way to get our fair share of the consumer market."

Lowering costs is important in improving a company's financial position and one technological development which is saving companies money is mark sense toll ticketing. This was discussed by R. W. App, Independent company relations engineer of Mountain States Telephone & Telegraph Co.

Significant benefits to each company department and to the subscriber from mark sensing were described by him as follows:

"*Traffic.* Traffic savings result from the elimination of manual counting, rating, sorting, and filing of toll tickets by terminating points. This means reduced personnel, improved study procedures, and more data available at lower costs.

"*Commercial.* The result here is fewer calls for toll adjustments, less filing and clerical work, and more and better toll sales information.

"*Accounting.* The greatest benefits from mark sense operation will be in the accounting department where many of the manual work operations are converted to machine operation. This results in quite a savings in personnel.

"*Customer.* Finally, the customer will receive an improved statement of long distance charges. Called points and certain other entries such as telegram message charges are generally spelled out rather than abbreviated which should result in better customer understanding of our bill."

He explained how his company's conversion to mark sensing will affect the Independent companies in the area.

For those who will do their own billing, the Mountain States company will provide mark sense toll cards in five-day rounds for billing purposes the same as at present.

"Initially," he said, "we plan to furnish the full card, however these cards may be cut to toll ticket size for ease of handling.

"Certain of your companies who are presently preparing 1A type toll tickets will probably wish to give consideration to converting to Mark Sense operation sometime in the future.

"Cost factors to be considered in such a conversion are the modification of the calculagraph as well as certain switchboard modifications. . . . The modifications in the switchboard include enlarging the slot on the key shelf as well as ticket compartments on the face of the switchboard. Training of the operators is also necessary and on the average it takes about two days per operator."

Companies can have the Mountain States company prepare toll statements for them at a charge. Mr. App, describing this procedure stated:

"In the past, due to the number of manual operations in our accounting departments, it has not been practical for us to do any of the billing for Indepent companies. However, with the introduction of the machines it appears at this time that we can prepare customers' toll statements for certain of the Independents. . . .

"Such a bill would not carry any company name and would necessarily have to coincide with the settlement period.

"The customers' bills together with the supporting Mark Sense cards would be furnished to your company within approximately seven to 10 days after the closing of the settlement period. The charges from these statements would then be included with other of the service charges for your monthly bill."

(Continued on page 36)

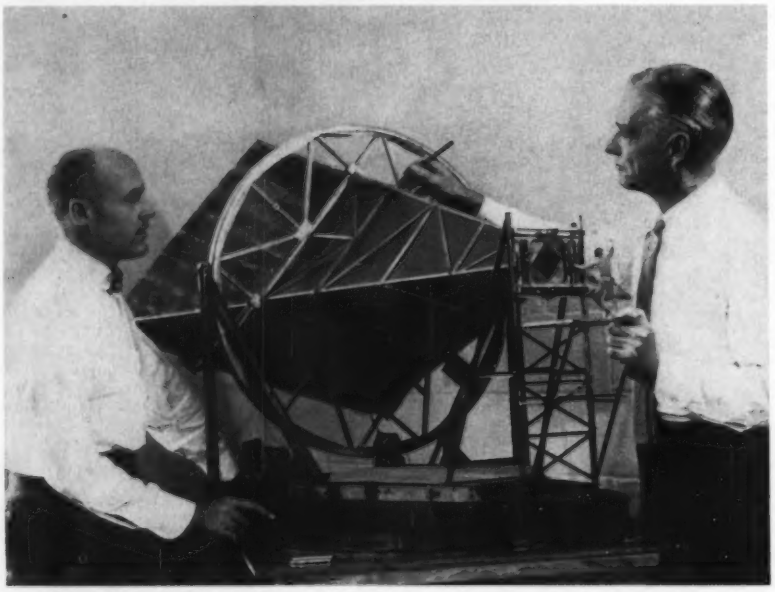
Bell Laboratories Constructing Outer Space Telephone Terminal

AN EXPERIMENTAL ground station for sending and receiving telephone messages by way of man-made satellites is taking shape on a hilltop in Holmdel, N. J., Bell Telephone Laboratories announced on Oct. 2.

The station, under construction by Bell labs on Crawford Hill, could point the way to a network of terminals for sending telephone calls and live television to distant parts of the world. These stations would "bounce" radio signals off dozens of "sky-mirror" satellites.

The station will include control buildings and two large antennas for communication experiments with objects in outer space. One of the uses of the installation will be to take part in communication projects sponsored by the National Aeronautics & Space Administration (NASA).

Bird's-eye view of satellite communication station. The prefabricated buildings will house various control stations. The circular concrete structure in the foreground will be the base for a highly efficient, low-noise horn antenna. The circular base in the background is for a conventional dish-shaped antenna which will be the transmitter.



Engineers examine a model of the large horn antenna which will be used at the Bell Telephone Laboratories ground station for experimental communication via man-made satellites. The station is under construction at Holmdel, N. J. When completed, the horn antenna will be about 50 feet in length, and the aperture will measure about 20 feet by 20 feet. The figure of the man at the right edge of the horn is in scale to the size of a 6-foot worker next to the completed antenna. Looking over the model are Dr. W. C. Jakes Jr., project engineer, and A. B. Crawford, who designed the horn structure.

One of the projects at Holmdel will test the quality of radio signals transmitted between stations on opposite sides of the United States by means of reflection from a satellite.

Although single telephone channels will be used in the experiment, the objective is to determine whether television's "broadband signals" (the equivalent of about 900 telephone channels) could also be transmitted, Bell Labs stated.

Such broadband signals cannot now be carried over present submarine cables, and cannot be transmitted directly by radio between widely separated points because the signals are blocked by the earth's curvature.

The laboratories said the microwave radio signals to be used in the experiment will be analyzed to obtain information about transmission effects. The data also will be studied to discover the reflection characteristics of satellites in orbit.

The satellite experiments probably will be preceded by test transmissions of signals using the moon as the reflector. The signals will be received and transmitted between NASA's Jet Propulsion Laboratory tracking station at Goldstone, Cal., and Bell Laboratories, some 2300 miles apart.

Heart of these communication experiments will be the antennas and the transmission techniques, Bell Labs pointed out. The Holmdel installation will include a dish-shaped commercially available antenna to transmit signals, and a horn-shaped antenna will be the receiver. The latter antenna was designed by Holmdel engineers and is a large version, adapted for tracking, of the horn-reflector antenna which was originated some years ago at Holmdel for radio relay use in the Bell System.

The horn-reflector design permits the antenna to receive radio energy from essentially one direction, and less than one-millionth as much from other directions. The result is greater concentration on the wanted signal and less pickup of "noise" from other directions, especially the radiation from the ground, than for conventional antennas.

In conjunction with the horn, a highly sensitive receiver is required. The receiver will utilize extremely low-noise amplifiers, either a pair of "parametric amplifiers" or "masers," or a combination of one each. The central

(Continued on page 52)

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE CERTAINLY ENJOYED reading the story of the old-time construction gangs by Gilbert R. Brackett which appeared in the Sept. 5 issue of TELEPHONY.

This recalled to mind our own experiences while working with similar gangs down in Oklahoma many years ago. Our transportation in those days consisted of a horse or mule-drawn wagon, and we lived at small town hotels, in camps, or with farmers who lived along the line. Often, the hay loft in the barn was converted into sleeping quarters.

I agree with Brackett as to the outstanding ability of the old-time line foreman. Not only was he a first-class construction man, but he was also an unlettered student of human nature and could control and manage men who worked for him.

He could likewise handle them physically when the occasion demanded. I knew one foreman who would not keep a man on his gang he could not whip. After a new man had been on the job a few days, the foreman would challenge him to a friendly sparring match. If the new man displayed above-average ability with his fists, the foreman soon found a reason to lay him off.

Another foreman claimed that the only sure cure for a hangover was hard work. Many's the "morning after" he would put on his hooks and invite the other linemen to follow him. He would lead us a merry chase until he regained his normal health, usually about noon.

Not only could the old-time foreman line up poles to a gnat's eyebrow without a transit, and detect the right amount of slack in line wire, but he could also stand on the ground and determine whether a transposition was cut right over left, or vice versa. He could, and upon occasion did, grab a long-handle shovel and demonstrate to a new grunt how a hole should be dug. Outstanding skill can be demonstrated even in the digging of a simple pole hole.

I believe that the Dean of all Line Foremen whom I have ever known was Theo Keen who worked for many years in western Oklahoma. He finally retired and has since departed this earthly sphere. When I decided to quit the strenuous work of the line gang and transfer to exchange work, he advised against it. He could not tolerate anything except a construction man. Then there was Lee Pitts, another outstanding foreman of that era. Another was Harve Allen, from the writer's home town of Weatherford, Okla., who retired only a few years ago and is presently working on a government job in Alaska.

For many years, the line foreman merely reported the time worked by each member of the gang. Then, accounting came into being and more detail of work accomplished and materials used and recovered was required. The old-time foreman was definitely not a paper man, hated these reports with a vengeance, and always had trouble with them.

One classic report from an old-timer read as follows: "Hung one guy, took down two guys, rained, and the guys all went home." The company finally hired clerks to handle the paper work of the construction gang, which solved the problem.

In the old days safety first was never considered and we had not yet heard of public relations. We never bothered to ask permission to trim trees, and if the owner objected, we might slip in at night and trim them. Hauling the limbs away was a detail that we never considered.

When right-of-way could not be obtained, we, on occasion, also built lines at night. In a few cases, a farmer with a shotgun interrupted these nocturnal operations. The foreman always won out in the end though, and to my knowledge we never suffered any casualties.

We often experienced difficulty in finding a place to stay in small towns. Many small hotels refused accommodations for line gangs because of their reputation for wrecking their living quarters. Such stunts as taking a light bulb on an extension cord to bed as a foot warmer and setting the bed on fire never helped the situation. Nor did all-night crap games on pay day ever increase the popularity of line gangs with hotel managers.

I agree that the "floater" or "boomer" linemen were a colorful lot. They invariably wore a derby hat as it cleared the wires well when they were climbing through the crossarms of the heavy leads that were common in that period. They invariably wore bib overalls or suspenders, and generally, laced boots with the pants rolled up well from the bottom completed the uniform.

The "boomers" always arrived in the spring via a stolen ride on a freight train. Their hooks, belt, hand tools and spare clothes were wrapped in a neat bundle and slung over their shoulder by the safety strap. Toilet articles consisted of a comb only as a Saturday night shave was always had at the local barber shop. If the hotel did not have running water, a twenty-five cent bath with towel was also enjoyed on Saturday night at the barber shop.

I agree, also, that the "boomer" was always a well-qualified lineman. He usually classed us home guards as "climbing grunts" who could never qualify for a union card. We did, however, learn by working with the "boomers" and never worried about their superior ability, as their tenure with us was always short. We were all aware of the fact that on any pay day they might catch the first freight train out of town. In no event would they work into the cold weather before migrating south.

One "boomer" we knew as Guy Scooter Harrison came north in the spring but always moved back to south Texas in early fall. Then there were

(Continued on page 48)

Need For Better Business Climate Stressed at Arkansas Meet

By LOIS KEHOE*

"THE TELEPHONE industry is the strongest regulated private business in our land, one of the highest taxed and one of the most politically expendable," J. D. Garrett Jr., outgoing president of the Arkansas Telephone Association, told some 300 convention delegates at the meeting in Hot Springs on Sept. 14 and 15. Theme of the convention was "Build a Better Business Climate."

In his opening remarks to the assemblage, Mr. Garrett pointed out some of the perils that today beset the telephone industry.

He followed these up with five steps that telephone company managements can take to help cure some of these industry problems.

"Today, we find ourselves in this predicament," said Garrett:

(1) We are the strongest regulated private business in our land. Our city councils regulate us, our county judges regulate us, our state regulates us and our federal government regulates us. They have taken over numerous rights of management itself.

(2) We are one of the highest taxed industries, along with whiskey and slot machines. The city taxes us, the county taxes us, the state taxes us and our federal government taxes us. And, in addition, they all tax our subscribers over and above what they tax us.

Registration was a happy affair for these smiling conventioners signing in for the Arkansas Telephone Association's meeting.

(3) We find ourselves politically expendable. One sure way of getting elected is to promise to lower the rates of all the public utilities.

Mr. Garrett said the answer to these problems is to "Built a Better Business Climate."

To accomplish this, he suggested these ground rules:

(1) Be ever aware that if your company is to prosper and be financially sound, you must recognize that you

(Continued on page 51)

*Miss Kehoe recently resigned as executive secretary of the Arkansas Telephone Association to become assistant commercial manager of the Western Arkansas Telephone Co., Russellville.

"Sales and Frails" a musical skit featuring "Pop" Hodges and the Marked Tree Ensemble highlighted the program. Narrators shown are L. V. Ritter Jr., left, and Mel Ladd (far right).

Courts and Commissions

Ask To Enlarge Scope of TV Antenna Services in N. Y.

The New York Public Service Commission will hold a hearing on Nov. 5 to determine whether or not the New York Telephone Co. should be allowed to provide distribution facilities for companies offering community television antenna service.

The company proposes a new tariff providing for installation by the company of its own coaxial cable and connecting leads in areas where antenna companies propose to provide such service and renting the entire facility to these companies, which would, in turn, bill monthly fees to subscribers.

Several antenna companies now provide service to residents in various communities where terrain problems make it difficult for individual householders to obtain adequate TV reception. These companies own their own distribution cables and connecting leads to the properties of subscribers.

For the most part, their cables are carried on poles owned by New York Telephone Co. which rents the use of them, under contract, to the companies involved.

Seek to Bill Franchise Tax Raise to Local Subscribers

The Arkansas Public Service Commission on Oct. 26 is to hear the petition of the Allied Telephone Co., Little Rock, to pass a $300 yearly increase in city franchise tax to subscribers in Sheridan.

The company, which serves 605 subscribers in Sheridan, says that if the tax increase is not billed to these local subscribers, customers outside the city would have to share the cost.

The city of Sheridan had doubled the company's franchise tax effective July 1.

Ask Raise in Ohio

A rate increase has been requested by the Bucyrus Telephone Co. in a petition to the Ohio Public Utilities Commission, it was reported on Sept. 16. In its application, the company reported that its present rate of return is 4.28 per cent, and that the requested increase would give it a return of 5.44 per cent. The commission, however, figures the current return at 5.19 per cent, and in its report, said the return, if the increase was granted, would be 7.28 per cent.

File Suit to Challenge Mont. Relocation Payment Law

The constitutionality of Montana's 1957 highway relocation reimbursement law was attacked in a suit filed with the state supreme court by V. L. Jones, a Helena motel operator.

Mr. Jones contends that the highway commission has neither the right nor authority to spend money from the state's 7-cent gasoline tax for relocation of utility facilities.

Earlier, Deer Lodge Judge Sid Stewart had upheld this section of the law (Section 254) and had called it constitutional and valid.

This section provides that the state through the highway commission is to pay 75 per cent of the costs of removal and relocation, including acquisition of any new right-of-way, renewal and reconstruction of utility facilities when it is necessary to move them to make way for new highways.

Permitted to intervene in the case were Mountain States Telephone & Telegraph Co., Montana Power Co., Montana-Dakota Utilities Co., Pacific Power & Light Co. and others.

Jones claims that the law is invalid under Article 12 of the state constitution which provides that no money paid into the state treasury from the gas tax or other vehicle taxes "shall be expended for any other than costs of administering the law under which such monies are derived . . . and construction and maintenance of state highways."

The suit also notes that the federal highway act states that whenever a state pays for the cost of relocation of utility facilities necessitated by the construction of an interstate project "federal funds may be used to reimburse the state for such costs."

Alabama Company Asks Increase for Cut-Over

It was reported on Sept. 18 that the Orville (Ala.) Telephone Co. had requested a rate increase, and the case was set to be heard by the Alabama Public Service Commission on Sept. 23.

The company, which serves Orville and a ten-mile adjacent area, said the increase would help finance a dial system which will give better service to the subscribers.

S. D. High Court Rules PUC Must Change Bell Rate Base

The South Dakota Supreme Court on Sept. 15 reversed a circuit court judgment which had upheld a Public Utilities Commission order denying Northwestern Bell Telephone Co. an increase in rates and it also directed that the case be remanded to the commission (TELEPHONY, Dec. 6, 1958).

The company on Feb. 14, 1958 had filed rate schedules with the commission seeking a $500,000 increase in annual net revenues. This was to bring the company's earnings up to an approximate 5.9 per cent rate of return which the commission had authorized in an earlier order on Oct. 18, 1957.

The commission denied the company's petition. It adopted a rate base of $28,130,179 taking the company's book values as correct. It found $27,555,742 to be the average net investment in plant for 1957 and to this added $387,500 for the average amount of materials and supplies on hand and $186,937 for average working capital.

The company showed that additional net plant investment of $716,764 was called for resulting from the replacement of equipment at the Aberdeen exchange which was placed in service Jan. 19, 1958. By adding this amount to the 1957 year end net intrastate investment of $29,827,808, the company asked for a $30,526,681 rate base as of Jan. 31, 1958.

The commission refused to consider the base proposed because it extended beyond the cutoff date of Dec. 31, 1957.

The commission also computed the 1957 intrastate net earnings to be $1,-

631,643 which it said would provide a 5.8 per cent return on the commission-determined rate base of $28,130,179.

The company claimed net earnings for 1957 of $1,601,542 which would have given it a rate of return of 5.24 on its proposed rate base of $30,526,-681.

Circuit Court Judge O. K. Whitney upheld the commission denial of the proposed increase.

The South Dakota Supreme Court in its findings said that it did not think the commission erred in using an average of the net investments at the beginning and at the end of 1957 in calculating the rate base.

"The commission was not bound to follow its past practice of using a year end rate base," the court continued.

Also it stated, the commission did not exceed the bounds of legitimate discretion in fixing a cutoff date.

However, the court said, "We think that the commission exceeded its authority in not making an adjustment to include the cost of replacement at the Aberdeen exchange in the rate base and that there should be an opportunity to make a supplemental finding."

The high court rejected the company's assertion that an additional allowance of $38,699 to reflect an increase in casualty damage was necessary. It did accept the company's proposed addition to earnings of $8,598 resulting from decreased expenses at Aberdeen.

The company had contended that the treatment of its construction program by the commission had the effect of confiscation and was an attempt to dictate policy; that a substantial portion of the plant being added in the immediate future was for the purpose of replacing existing plant and would produce no additional revenue, and that as plant at high construction cost was added, the increase in rate base was greater than that of earnings and the allowed rate of return could not be earned.

The commission in its proceedings had presented testimony that "with the continued normal growth in revenue producing units, the company can, under present rates add about 3 million dollars to its plant investment per year which should be sufficient to provide for such normal growth and to permit it to continue the conversion of its remaining 25 manual exchanges to dial operation at a rate of five or six per year.

"If it is necessary to speed up a program of direct distance dialing by immediately reconverting . . . exchanges . . . to direct distance dialing, then . . . any increase in revenue required for such a program should come from an increase in toll rates as that is the service that will receive the direct benefit from such reconversions."

The South Dakota Supreme Court in this decision said that in the 1944 Hope Natural Gas Co. case, the U. S. Supreme Court rejected the fair value formula and in that case said that in determining reasonable rates a regulatory agency is not bound by "any single formula or combination of formulae."

The court added that there was no fair value statute in South Dakota.

General of SW Announces September Increases in Tex.

The following rate increases became effective in these Texas exchanges of the General Telephone Co. of the Southwest during the month of September. Old and new rates are shown as follows:

	Old	*New*
Charlotte, dial, 253 stations, Sept. 16.		
One party business	$9.00	$10.00
One-party residence	4.75	5.25
Two-party residence	4.00	4.25
Crosbyton, dial—EAS, 690 stations, Sept. 1.		
One-party business	9.50	10.25
Two-party business	8.00	8.75
One-party residence	5.00	5.20
Two-party residence	4.25	4.45
Four-party residence	3.50	3.70
Groom, dial, 261 stations, Sept. 1.		
One-party business	7.50	8.50
Two-party business	6.00	7.00
One-party residence	4.25	4.75
Two-party residence	3.75	4.00
Hughes Springs, dial, 580 stations, Sept. 1.		
One-party business	9.00	10.50
Two-party business	7.50	8.50
One-party residence	4.75	5.25
Two-party residence	4.00	4.75
Four-party residence	3.50	4.00
Mt. Calm, conversion to dial, 134 stations, Sept. 15.		
One-party business	6.00	9.00
One-party residence	3.25	5.00
Four-party residence	2.00	3.50
Sundown, dial, Sept. 11.		
One-party business	6.50	9.00
Two-party business	5.00	7.50
One-party residence	3.75	4.75
Two-party residence	3.00	3.75

Seek to Enjoin Rates Set General of SW by Tex. City

The General Telephone Co. of the Southwest, it was reported on Oct. 3, has filed suit against the city of Jacksonville, Tex., seeking an injunction which would lay aside rates set by city council action in April.

The company says the rates are too low to provide a fair return on its investment in Jacksonville.

These rates are:

One-party business	$9.90
Two-party business	7.75
One-party residence	5.00
Two-party residence	4.25
Four-party residence	3.10

Authorize Sale in Missouri

The Missouri Public Service Commission has approved the sale of the Civil Bend Telephone Co., to the Inter-County Telephone Co., Gallatin, according to Mina A. Hibbs, Civil Bend company secretary.

An article he read in the Aug. 1 issue of TELEPHONY on the cable pressurization system of Orange County Telephone Co., Middletown, N. Y. was responsible for bringing Stewart S. Li, (second from left), of Formosa, a visiting communications engineer to Middletown. Mr. Li who is with the Taipei Telecommunications Office, is traveling through the United States under the auspices of the Federal Communications Commission. His guides for a tour of the Orange County company are, left to right, Charles C. Chappell, president; Frank D. Fancher, executive vice president, and Alton F. Bradner, plant manager. Mr. Li thinks that pressurization may help solve some of Formosa's telecommunication problems which are complicated by heat, earthquakes, typhoons and high humidity.

The Eureka Telephone Co., Corydon, Ind., this year strongly augmented its advertising program by participating in the Harrison County Fair. W. A. Parker, manager, reports the company not only took display space to demonstrate its equipment and services, but entered a float (seen at left) depicting its 57 years of progress in telephony. The telephone motif had a prominent place on the float and in the display. Clearly seen in right photo are strands of telephone wires with red insulation criss-crossed in a diamond pattern in the ceiling. Items on exhibit included the Electronic Secretary and Electronic Sentry, a hard-of-hearing telephone, a hands-free telephone, plugs and jacks, multiple line telephones, and the Ericofon. An added feature of interest to visitors registering was a dismantled telephone, the number of whose parts they were invited to guess. The two nearest correct guesses were awarded a color extension telephone and service for one year. On the registration slip there was a handy check list of items in which the visitor might be interested, and which will be used for follow-ups. A daily drawing also provided two free telephone calls to anywhere in the U. S. The Eureka company exhibit received 3,000 visitors during the fair.

N. Y. Commission Says Price Too High; Denies Sale Pleas

The New York Public Service Commission on Oct. 8 denied the petitions of the Darien Telephone Company, Corfu, and Spencer-Van Etten Telephone Company, Spencer, to sell their plants to Western Counties Telephone Corp., New York (TELEPHONY, May 9).

At the same time, the commission denied a request by Western Counties for permission to issue $185,000 in common stock and to borrow $1,064,000 from the Rural Electrification Administration with which to finance modernization of the plants it had proposed to acquire.

The commission's decisions were based upon a determination that the proposed prices of the two companies were in excess of their value. They were made, the Commission said, without prejudice to the rights of the companies to renew their requests later if they can produce evidence required by the PSC as to the value of properties involved.

Western Counties Telephone was told its case might be reconsidered later if it "desires to issue a portion of the proposed securities which are commensurate with the estimated cost of the improvements" which it proposes to make to its own property.

Western Counties Telephone Corp. (formerly Marathon-Killawog Telephone Co.) furnishes dial service to about 835 subscribers.

Ownership of it was acquired originally by H. Russell Cammer in bankruptcy proceedings of the former Killawog Telephone Co. Associated with Mr. Cammer as its officers are Herman Sandov and Harold I. Cammer.

These same three men, the commission said, own virtually all of the outstanding stock of the Darien company and all the stock of the Spencer-Van Etten company, having purchased them at what the commission considers to have been inflated prices.

The Darien company serves about 1,100 subscribers through exchanges at Darien and Corfu. The Spencer-Van Etten company serves about 790 subscribers through exchanges at Spencer and Van Etten.

In denying permission for the proposed transactions, the commission adopted a report filed by Examiner William T. Wilkinson which notes the failure of company officials to comply with PSC rules requiring the submission of specific information required in property transfer proceedings. Mr. Wilkinson said:

"This commission has no control over the purchase by an individual, who is not a telephone corporation as defined by the Public Service Law, of shares of capital stock of a telephone company which is under its jurisdiction; and apparently cannot prohibit such individual or individuals from acquiring control of a telephone company through purchase of the majority stock.

"Such purchases are made at the investor's peril.

"It should be clearly understood, however, that where the purchase is effected at unreasonable, or exorbitant, or unrealistic cost, or upon otherwise onerous terms, or conditions, the purchasers cannot expect the commission to bail them out or to otherwise safeguard or make good their investment upon subsequent sale of the related telephone system.

"The price to be paid by Western Counties for the telephone systems of the Darien and Spencer companies . . . considerably exceeds the book value of the telephone properties and other assets to be acquired and the liabilities to be assumed, and will more considerably exceed the original cost less the accrued depreciation of such of the said properties which will survive the proposed conversion to dial operation."

Idaho Court Invalidates Relocation Reimbursement

An opinion handed down by the Idaho Supreme Court held recently that state funds cannot be used to reimburse telephone companies and other utilities for the cost of relocating their facilities when necessitated by new highway construction.

The high court ruled that a 1957 law providing for such reimbursements was unconstitutional on the grounds that it would lend the credit of the state for a private purpose and would constitute a gift of public money to the utilities.

William R. Padgett, who represented the state highway department in the

case, said the ruling would mean a saving to the state of 1 million dollars in projects built since the 1957 law was enacted, and would result in a saving of nearly 9 million dollars during the 13-year period of the interstate highway construction program.

Justice E. B. Smith wrote the court's 4-to-1 opinion, with three district judges concurring. Justice E. T. Knudson dissented.

Knudson said he believed that by construction and operating facilities on highway rights-of-way, utility companies gain a measure of property rights.

The majority opinion, however, held that if such rights were granted it would, in effect, "decrease the ownership of the public in the public thoroughfares and give away the property of the public which the state holds in trust."

"The right of utilities to the use of public thoroughfares," the opinion declared, "is not and cannot be regarded as a permanent property right."

The high court's ruling reversed a decision by Third District Court Judge Merlin S. Young.

EAS Approved in Kentucky For Bell Subsidiary

The Citizens Telephone Co., a subsidiary of The Cincinnati & Suburban Bell Telephone Co., on Sept. 21, was making preparations to provide improved telephone service to the Independence area in Kenton County, Ky., following authorization by the Kentucky Public Service Commission.

The company will enlarge the base area around Independence, and establish a locality rate area which will enable subscribers in that area to make metropolitan calls without toll charges.

Don W. Dericks, district commercial manager of the company, said the proposal was worked out as the result of a survey in which about 1,400 persons were contacted. He said that 68 per cent of those in the area favored establishment of EAS, and 32 per cent favored retention of the present rural service.

Subscribers who do not wish to change their present service may retain it, Mr. Dericks stated, but no new rural service will be provided in the future.

Charges in the base rate area will be as follows:

One-party residence	$6.40
Two-party residence	5.15
One-party residence, locality area	7.15
Four-party residence, locality area	5.15

Present rates are a minimum of $2.00 plus toll charges of five cents for each additional five minutes on calls to the metropolitan area.

Citizens Telephone Co.'s proposal to enlarge the Independence base area and to establish a locality rate area offering extended area service followed complaints made by residents about existing service.

Alaska Company Acquired By GT&E in Stock Exchange

The General Telephone & Electronics Corp. on Oct. 9 acquired Alaska Telephone Corp., according to an announcement by Donald C. Power.

General acquired all of the outstanding stock of Alaska Telephone in exchange for common stock of General, Mr. Power reported.

Pointing out that General Telephone & Electronics is the first major company to own and operate a telephone system in Alaska, Mr. Power stated that "the acquisition will enable the General System to serve Alaska's expanding economy and to participate in the further development of the state's great potentials."

He said that a meeting of the new board of directors of the Alaska Telephone Corp. will be held later in October, at which time officers will be elected and initial consideration given to improving and expanding the telephone services offered by the Alaska company.

Alaska Telephone, which was incorporated in 1948, operates in the following four cities in the state of Alaska: Seward, Petersburg, Haines, and Wrangell. The cities of Petersburg, Haines, and Wrangell are located in what is commonly known as the Alaska Panhandle. Seward, which is one of the principal cities in Alaska, and is considered to be the unofficial capital of the Kanai Peninsula, is an all-weather seaport and the terminus point of the Alaska Railroad.

Incorporate in Nebraska

The Sioux County Telephone Co. filed articles of incorporation with the Nebraska Secretary of State on Sept. 19. Incorporators of the non-profit association are Fred Newell, Virgil L. Hughson, I. D. Kickey, Beulah E. Hughson, George W. Obert and John A. Leimig, all of Agate, and Earl Hatch of Mitchell.

Ask to Buy Two in Illinois

An application by the Midland Telephone Co. to purchase the plant, system and facilities of the Pocahontas Telephone Co. and the Millersburg Mutual Telephone Co. was to be heard by the Illinois Commerce Commission on Oct. 7.

General of SW Asks Sale $3 Million Common Stock

The General Telephone Co. of the Southwest it was reported on Sept. 17 asked the Arkansas Public Service Commission for authority to sell 3 million dollars worth of its common stock.

The company said it plans to sell 120,000 shares to the General Telephone & Electronics Corp. of New York for $25 per share.

General of the Southwest expects to use the proceeds of the sale to refinance outstanding short-term loans, its application stated.

IEI Sets One-Day Seminars On Creative Engineering

The Industrial Education Institute (IEI) is announcing an intensive series of one-day seminars in four cities on the theme, "How to Develop Creative Engineering."

This is a cooperative venture with professional societies, trade associations, and business publications, IEI states.

The seminar schedule is set for Boston, Hotel Somerset, Oct. 20; New York, Hotel Park-Sheraton, Oct. 21; Cleveland, Hotel Pick-Carter, Oct. 27; and for Chicago, at the Hotel Pick-Congress, on Oct. 28.

The New York Telephone Co., taking a tip from that popular safety-plugger, "Smokey the Bear," has come up with its own safety character, "Doc Safety," who, it is hoped, will be as successful in promoting safety awareness in industry. Already, the "Doc Safety" symbol, shown here as ceramic paperweight, is appearing on memo pads, safety literature, bulletins, etc., and has made management and safety conference appearances. The New York company will cooperate with all companies, it says, who wish to promote safety by making "Doc Safety" available to them.

Instructor for the scheduled seminars is A. L. Simberg, supervisor of personnel research and development, for the AC Spark Plug Division, of General Motors Corp., who is an authoritative speaker on creative techniques.

The program outline includes the following subjects:

Defining creative engineering.
Overcoming the obstacles to creativity.
Approaches to creative thinking.
Supervising for creativity.
Making creativity possible.
Other applications.
A case study of a creativity program.

For reservations, those interested should contact the Industrial Education Institute, 25 Huntington Ave., Boston 16, Mass. Telephone: COmmonwealth 6-5494.

Lafourche Telephone Co. employes pictured inside the communication center helped provide the first complete telephone service the Grand Isle (La.) Tarpon Rodeo has had since its inception in 1928.

Center Built by La. Company Serves Fishing Derby

A "communications center" established by the Lafourche Telephone Co., Inc., Larose, La., provided on-the-spot telephone service for fishermen and spectators attending the 1959 Grand Isle (La.) Tarpon Rodeo. Additional trunks provided in the center also relieved the busy condition normally experienced during the annual event.

This Rodeo is 31 years old. It began in July 1928 when a few ardent sports fishermen gathered together on Grand Isle for the first tarpon contest. To get to Grand Isle in 1928, one had to travel by boat through bayous and lakes. The boats were very slow and required some 10 hours or better to navigate from New Orleans to Grand Isle. The only communication was the mail boat.

In 1933, a shell highway was completed from Golden Meadow to the island—following Bayou Lafourche for some 10 miles, then across the low marshes to Caminada. A bridge connected Grand Isle with the mainland. Communication, using the road, was then made much faster.

From 1928 to World War II the Grand Isle Rodeo had grown from an annual affair with just a few friends competing to an event gaining attention over most of the United States. Registration had grown to hundreds.

The first rodeo in 1928 had only the tarpon as a prize fish, but by 1941, several other species were added as prize fish.

The road to Grand Isle was still poor and at that time telephone communication consisted of only a few lines that were not adequate.

During the war years, 1942 through 1945, the Grand Isle Tarpon Rodeo was not held. But it came back stronger than ever in 1946, gaining national attention.

Today, although it boasts of nearly 2,000 registered participants, many more than this number join in the festivities on Grand Isle. Twenty-one species of fish are now eligible for prizes.

Since 1945 when the Lafourche Telephone Co. commenced operations, telephone service to Grand Isle has been steadily improving. However, in 1958, due to the overflow of people on the island, communication was still not adequate to meet the demand. Many even felt stranded because all available toll trunks were busy and they could not call home.

A week before 1959 rodeo time (July 16, 17 and 18) the Lafourche company was able to put into service additional circuits through its microwave system.

The company's personnel went to work. With much overtime and very weary bodies they were able to erect a temporary building, and connect new underground cables back to the Grand Isle central office then on to the microwave tower and out to the nation.

The building measuring 16 feet by 24 feet with its low overhanging flat roof, partially screened sides and sporting a modern sierra red color, has been named "the communications center."

Housed in the center, 20 telephones in as many different colors as could be obtained, were connected directly to the company's toll center at Larose, approximately 50 miles away, via microwave trunks.

For control purposes, two operators' headsets were bridged directly to the headsets of operators on two toll positions at Larose and a third control circuit went direct to the charge operator.

A paystation was placed adjacent to the center primarily for local calls on the island and for long distance use at night when the center was not in operation. The center however was open from 7 a.m. until 11 p.m. beginning the day before the rodeo and lasting until the final night. The very gala occasion was brought to a climax with the presentation of trophies and thousands of dollars in prizes ranging all the way from a canoe paddle to a 1959 automobile.

This marked the first occasion since its inception when communications were ample for the Grand Isle Tarpon Rodeo. The service given by the operators on duty, handling incoming and outgoing calls, was of a quality that any company would be proud of.

The overall effectiveness of the communication center was vividly brought out by the verbal expressions of approval heard in and around the Tarpon Rodeo headquarters and by letters received by the Lafourche company.

Management of the Lafourche company felt that its communication center played such an important role in the most successful of all Grand Isle rodeos that it plans to continue this special service in future years.

The International SCUBA Divers Association was to hold its first annual tournament at Grand Isle, La., in early August with divers registered from all parts of the United States and others coming from Italy, Germany, France, Japan, Nova Scotia, South

(Continued on page 36)

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ATTENTION: J. M. Zidlicky, Director of Sales Promotion
Northlake, Illinois

Gentlemen:
Please send me a copy of your new 1960 P-A-B-X Sales Kit.

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PLEASE PRINT CLEARLY

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STREET ADDRESS _____

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America, and Cuba. Two hundred to 800 divers were expected to participate in the underwater activities. More than $15,000 in prizes were to be awarded. It was expected that upwards of 3,000 to 5,000 people were to be on hand at Grand Isle.

The company planned to again open its communication center for this occasion.

ROCKY MOUNTAIN CONVENTION

Continued from page 25

In regard to subscriber education about mark sensing, Mr. App stated that the MST&T's Independent relations people will work with Independent companies. Mountain States has prepared a sample bill insert which can be included in a company's first month's bills and which explains mark sensing.

As for the need for employe training on reading and understanding cards and bills, Independent company employes, wherever practical, can be included in Bell training classes, Mr. App said.

In another area, companies can also better their financial condition—by improving their collection practices, especially on delinquent accounts — according to Ray Priest, division commercial superintendent of the General Telephone Co. of the Southwest.

A method for keeping on top of these late payers and bad credit risks, before large sums can accumulate, was discussed by Mr. Priest.

In his talk "Don't Let It Go Down the Drain," he said every dollar lost through a bad debt takes others with it—those used to provide the service, cost of collection efforts, payment to connecting companies, billing costs, etc.

He outlined his company's collection practices system in which a credit card is set up for each customer and all the credit information available on every customer is put on these cards.

The accounts are then classified as A, B, and C with A being large businesses with well-established credit, government institutions, etc.; B being good credit risks, and C being the slow payers.

He discussed his company's methods of treating delinquent accounts through a follow-up system, leading ultimately to removal of the telephone if the customer does not pay his bill.

A telephone company's economic health also hinges upon how it meets its revenue requirements both through financing available to it and through the kind of rate of return it receives, L. F. Wingert, vice president-revenue requirements of Mountain States Telephone & Telegraph Co., emphasized in his talk, "Meeting Revenue Requirements."

Last year, Mr. Wingert said, 48 per cent of the funds raised by United States corporations for new capital was raised by utilities even though utilities have only 20 per cent of the total investment in nonfinancial corporations, 2 per cent of the working force and absorb only 7 per cent of the disposable income as revenues.

He attributed this disproportion to the fact that utilities cannot finance expansion from retained earnings.

He said:

"Regulatory bodies have never allowed revenues adequate to meet but a small portion of the need for additional funds out of retained earnings. This means that in order to meet the growing needs of its customers, a utility must be able to sell additional securities, and of course buyers are not interested in securities which, because of regulation, offer meager opportunities for capital gain unless they provide a fair return.

"The inevitable consequence of unreasonably depressed rates would mean, first, that utilities would be unable to market common stock. They might sell bonds or even preferred stock, but only at prices which provide a high yield to the investors and a high cost of money to the utility. Rates, therefore, would have to be adjusted upward to cover the high cost of money, and in the long run would end up higher than necessary, had reasonable rates been allowed to begin with.

"High cost money in the capital structure may be a burden on the rate payers for a long period of time and may even threaten solvency if a severe economic decline should occur.

"Also, if the utility's earnings are bad enough, it may not be able to secure the funds needed for growth. If the growth needs are not met, the economy of a community suffers. Likewise, of course, a bankrupt utility may bring a change to public ownership."

The quality of regulation, therefore, Mr. Wingert emphasized, determines a telephone company's future.

He stated that telephone people would generally agree that the true value, or reproduction cost new less depreciation, instead of original cost, should constitute the basis for measuring property for ratemaking purposes.

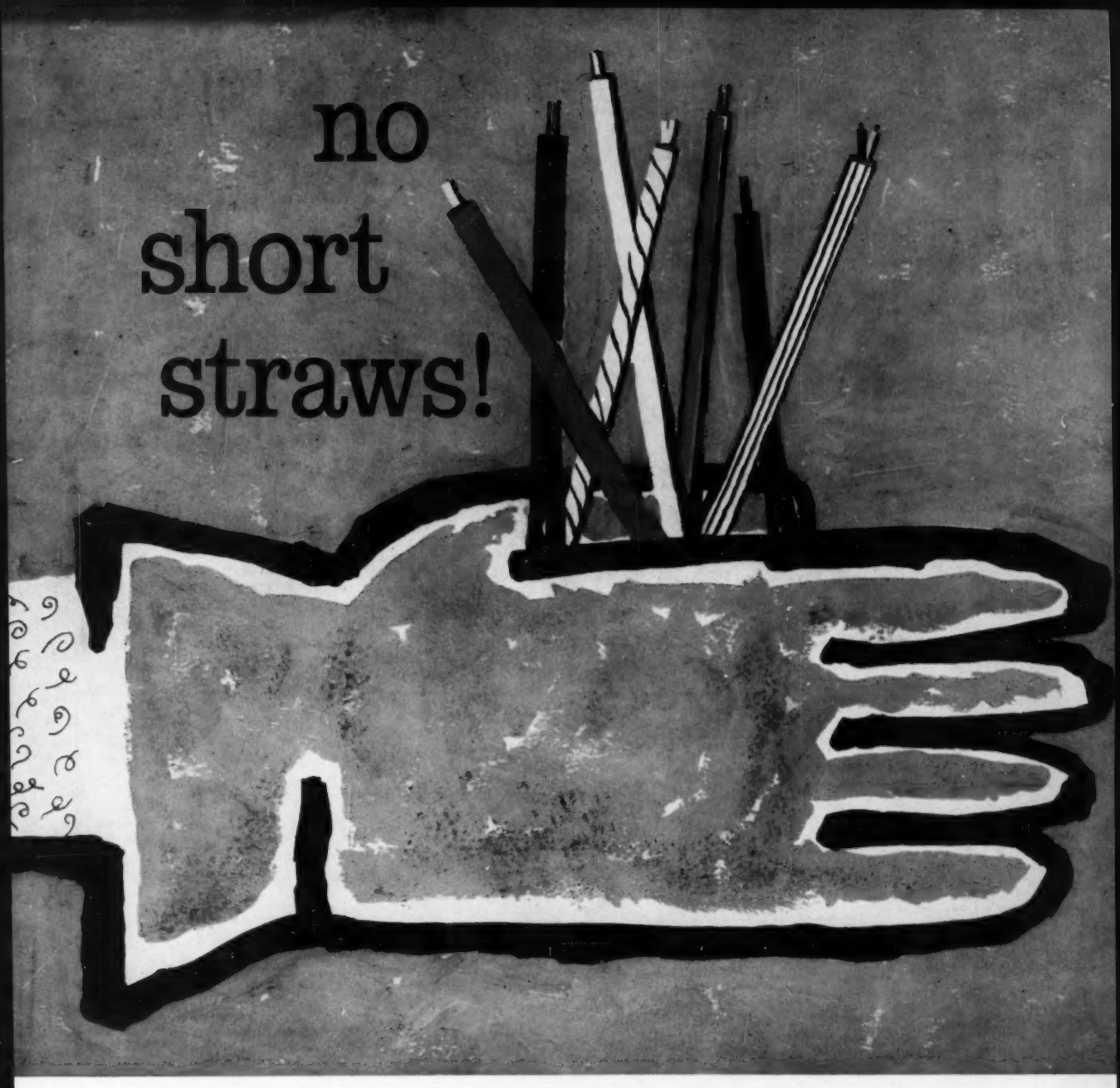
However, he pointed out that in only three states is the telephone utility rate base spelled out by statute.

He pointed out that these are Maine and North Dakota, where net original cost is prescribed and Ohio where reproduction cost new less depreciation is used.

Original cost, he said, puts a severe burden on the utility during inflation. Also, when depreciation expense is based on original cost, the depreciation reserve is generally only half enough to cover the original investment.

Mr. Wingert also commented on the belief that telephone companies have absolutely no competition. He said that for long distance service, it competes with the post office department. It also competes for the capital which it seems

Seated at the speaker's table during one session of the Rocky Mountain Telephone Association's convention were, left to right, Dick Baker, secretary-treasurer; H. B. Norman, who presided; Utah's Governor George D. Clyde; Norman H. McFarlin, assistant administrator of the REA; and L. F. Wingert, vice president of Mountain States Telephone & Telegraph Co.



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OPALON 1217—OPALON 1218 Inside distribution cable jacketing compounds, with toughness, ease of extrusion, excellent service life.

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Special Opalon compounds are available. Monsanto has also developed a complete line of polyethylene compounds for wire and cable insulation.

to need more than non-regulated industries. It also competes for labor, materials, supplies, and its share of the consumer's dollar.

A telephone company's return is not guaranteed, he emphasized. Although at the time rates are authorized, they should produce a certain rate of return under conditions which do exist, he stated that these conditions change and may not be as anticipated.

Higher earnings, he propounded, can produce long-term advantages to consumers. He said:

"This idea that higher earnings can produce long-term advantages to consumers makes a lot of sense. A company whose earnings are marginal cannot spend money today to do the things which will decrease costs tomorrow.

"A company with a good earnings level can afford to spend a little extra money today, thereby slightly reducing the current return, in order to gain offsetting advantages for the future.

"Piecemeal construction instead of sound economic engineering may mean that you spend less currently and therefore have less effect on the present rate of earnings but in the long run it creates a higher dollar plant investment which eventually must be paid for by consumers."

Also speaking at the convention were Norman H. McFarlin, assistant administrator of the Rural Electrification Administration, who looked at "REA in Perspective"; and Foster B. McHenry of Jefferson City, Mo., vice president of USITA. Mr. McHenry spoke on "Busy Days Ahead."

The afternoons were devoted to an Independent-MST&T workshop in which cable maintenance, open house and merchandising techniques were discussed.

The following directors were elected: J. W. Baker of Coeur d'Alene, Ida.; C. A. Blakeney of Carlsbad, N. M.; Ward Blazzard of Kamas, Utah; Rulon Callister of Delta, Utah; P. B. Corbin of Monticello, Utah.

Also, Earle Crandall of Pinedale, Wyo.; Donald Dickson of Rupert, Ida.; C. W. Haas of Big Timber, Mont.; C. M. Hart of Kingman, Ariz.; L. J. Hitchens of Ruidoso, N. M.

Also, E. J. Jennings of Holbrook, Ariz.; Charles McLean of Kalispell, Mont.; D. A. McLean of Denver, Colo.; H. B. Norman of Gunnison, Utah; Victor Redman of Pagosa Springs, Colo.; Floyd L. Reyher of Haxtun, Colo., and Grid Rowles of McCall, Ida.

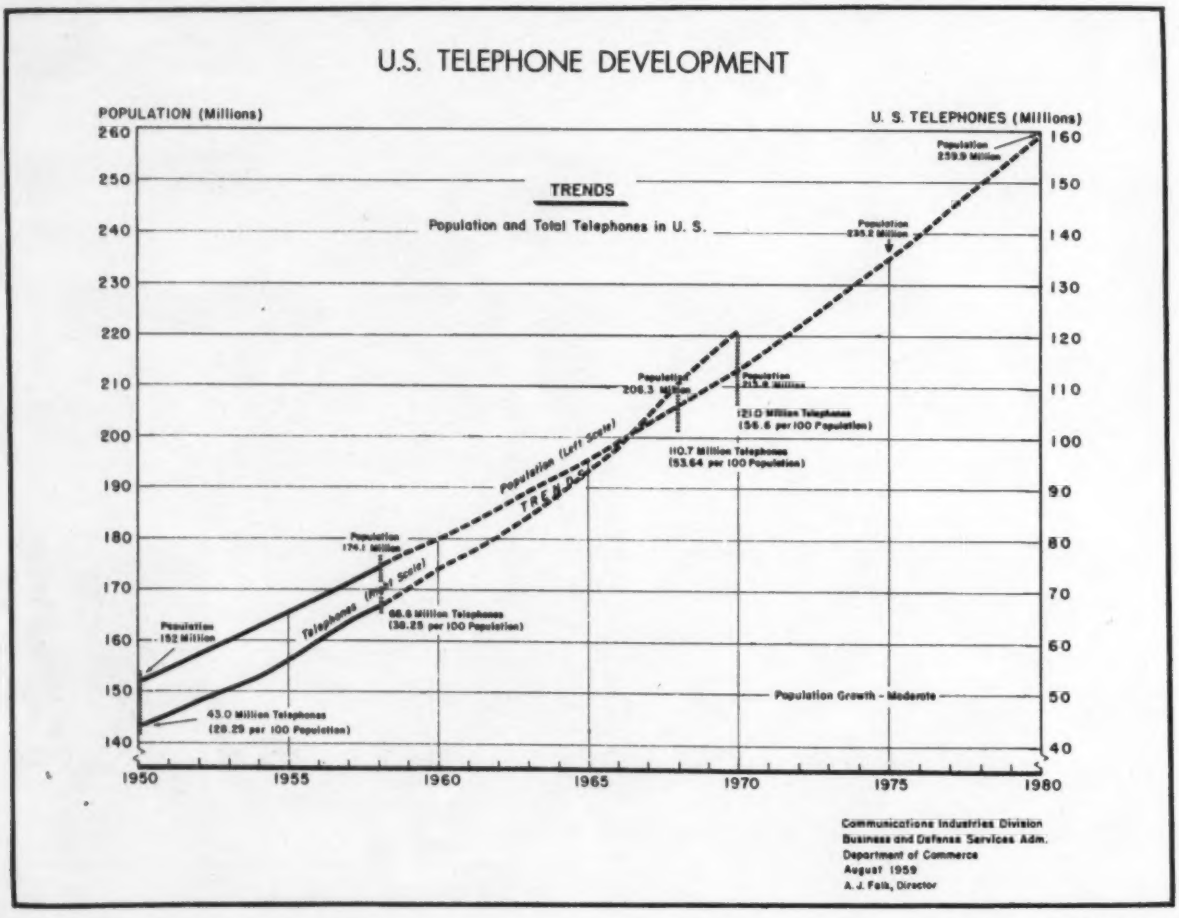
Officers are: President, Mr. Blakeney; vice president, Mr. Dickson; and secretary-treasurer, Mr. Baker. Others serving on the executive committee besides the officers are D. A. McLean and Mr. Norman.

U. S. Telephone Industry Shows Big Growth Prospect

The telephone industry is expanding at a rate that would put approximately 121 million telephones in service in the United States by 1970—or about 50 million more than at present—the Communications Industries Division, Business & Defense Services Administration, U. S. Department of Commerce, said in a study published on Sept. 27. This study is one of a series being made by BDSA to assist industry in programming.

The forecast, based on what is considered a moderate estimate of the

(Continued on page 47)



New "D" COATING

adds life to strand

...even in highly corrosive atmospheres

Bethlehem strand with the "D" bethanized coating has a tightly bonded zinc armor that's four times heavier than the economical "A" bethanized coating. Bethlehem's "D" coating, of 99.9 per cent pure zinc, is applied to the strand wires by our unique electrolytic process. Not only is the coating ductile, but it is also completely uniform in thickness.

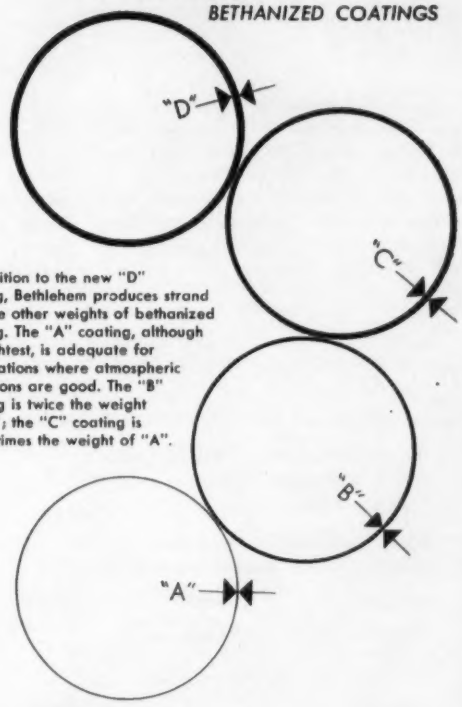
If you have any questions about Bethlehem strand, or its four weights of bethanized coating, the nearest Bethlehem sales office will be glad to talk them over with you, or write us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Behtlehem Steel Export Corporation

BETHLEHEM STEEL

CHOOSE FROM FOUR BETHANIZED COATINGS

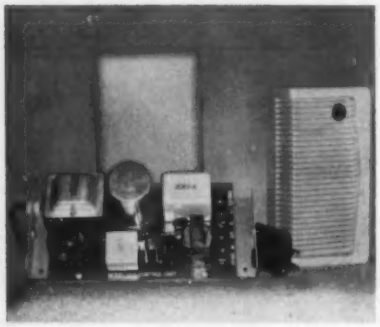


In addition to the new "D" coating, Bethlehem produces strand in three other weights of bethanized coating. The "A" coating, although the lightest, is adequate for applications where atmospheric conditions are good. The "B" coating is twice the weight of "A"; the "C" coating is three times the weight of "A".

BETHLEHEM STEEL

News on New Products

TELEPHONE DOOR ANSWERING AND INTERCOM UNIT — After two years of development and field tests with a major telephone company, the George W. Wall Co. has introduced its Model D-3 Telephone Door Answering and Intercom Unit. The Model D-3 Control Unit, together with one to four Model DR-3 Remote Speaker/Microphone Units, is designed to work in conjunction with conventional telephone subscriber instruments to provide "door answering" and "intercom" service on the subscriber's premises.



Normally connected for outside telephone service, the Wall company says an option switch of a multi-line telephone set enables the subscriber to hold a full duplex conversation with callers who have indicated their presence at the door by the usual doorbell call, or to page and hold full duplex conversations with other parties located on the premises.

The remote speaker/microphone device, installed in the vicinity of the area to be covered, may be partially or completely concealed, since the remote unit functions without assistance on the part of the remote party. While employed as a door answering and/or intercom device, the complete device, including the telephone instrument, is disconnected from the central office telephone line.

The equipment is placed in operation when the normal subscriber telephone instrument or telephone extension is lifted from its cradle ("off-hook" condition) and the option switch placed in the "door answering" or "intercom" position.

The above operation actuates the local power supply and establishes a full duplex talking circuit between the regular telephone and the remote speaker/microphone unit(s) of the selected "door answering" or "intercom" service.

The remote microphone output appears across the terminating network of the control unit where, according to the company, it is effectively prevented from appearing across the speaker amplifier input terminals and is simultaneously applied to the receiver of the telephone instrument.

The control unit contains a transistorized speaker amplifier, and receives its input from the telephone instrument, and has its output circuit connected to the speaker(s) in the remote unit(s). The output level of this amplifier results in sufficient talking level at the remote unit to cover a normal entrance or porch area, in the presence of normal street noises, for "door answering" or the normal room area for "intercom," the company reports.

The output level of the incoming speech from the remote unit is comparable to normal telephone levels and may vary from —20 dbm to —15 dbm at the receiver of the telephone instrument. Hum level at both terminals is approximately 33 db below operating levels and, states Wall, by virtue of the reproducers employed, is un-noticeable.

Local power for the transistor amplifier, microphone and talking battery for the telephone instrument is supplied by a self-contained power supply. With the exception of the connection to the house lighting circuit (115-120 VAC 60 cycles), no voltage in excess of 24 volts appears in this equipment, the company states. The over-all power requirement for the device is approximately 3 watts or equivalent to the operating cost of the usual door-bell transformer. A single transistor is used to disable the power supply when the equipment is not in use, so that no noise or unwanted signals can appear at the remote mounted speaker.

From a maintenance point of view, having no installation adjustments, this device, employing transistors and silicon diode rectifiers may be expected to give trouble-free service over a period of many years, the company states. The printed circuit board of the control unit is of durable Fiberglas and components are hand-soldered for greater reliablity.

Physical packaging has been designed to conform to standard telephone equipment practices, according to the company. The control unit D-3 is completely enclosed with aluminum base plate and drawn aluminum dust cover attached with captive screws and is 3½ inches wide by 7½ inches long by 3½ inches high.

The base plate is designed for easy mounting on rafter or wall, the company states. The remote unit, DR-3, is attractively enclosed in a custom plastic case, stocked in grey, with other colors available upon order. Enclosed components are weatherproofed and provision is made for the individual telephone company to mount an emblem identifying the unit as that of the telephone company. Request NP1205.

•

ONE-PIECE CROSSARM TANGENT SUPPORT—A one-piece crossarm tangent support has been developed by Preformed Line Products Co. to facilitate the stringing of one-pair aerial distribution (C-Rural) wire.

The new fitting is utilized ideally, the company says, under the following conditions:

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1205_____; NP1206_____; NP1207_____; NP1208_____;
NP1209_____; NP1210_____.

Name.....

Company.....

Street.....

Town and State.....

10/17/59

AE-Lenkurt

HAS EVERYTHING YOU NEED FOR PROFITABLE CIRCUIT GROWTH...

AE-Lenkurt engineers are fully equipped and ready to go any place at any time to see your job through.

"PACKAGED" SERVICES, for instance...

AE-Lenkurt has a full line of equipment to meet *all* your communications needs, but did you know that they can also provide a wide variety of other services? If you wish, the AE-Lenkurt team of *telephone* engineers can take care of all details right up to the cut-over date, and even provide engineering service for the life of the equipment.

In fact, the AE-Lenkurt Service "Package Plan" can relieve you of all planning, engineering and installation problems—and, in most instances, it costs you less than if you were to use your own personnel.

This "Package Plan" is broad enough to handle complete projects from start to finish, yet sufficiently flexible to provide economically just the partial services you need. Experienced project engineers plan your system requirements in detail, procure the necessary equipment, arrange for construction, supervise installation, and train your operating and maintenance personnel on the job.

For full details on Lenkurt's "Engineer, Furnish and Install," AE's "Follow-Thru Engineering," or the complete AE-Lenkurt Service "Package Plan," call your Automatic Electric representative, or write T. B. Collins, Automatic Electric, Northlake, Illinois.

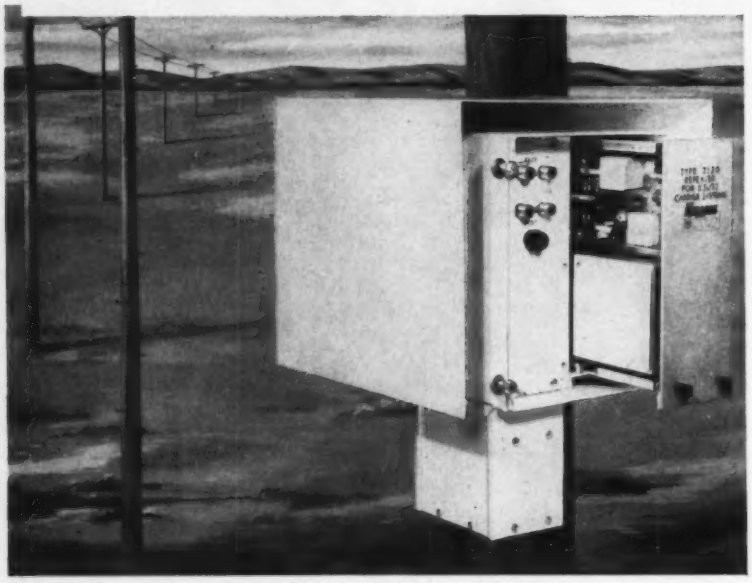
ALL YOUR COMMUNICATIONS NEEDS FROM ONE DEPENDABLE SOURCE

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

K-31
with the new
Kellogg Repeater
doubles
Carrier System Mileage!



The only system offering a Repeater

Check these advantages:

- ☑ Kellogg's exclusive new repeater *doubles* the mileage you get from your K-31 carrier system.
- ☑ Two repeaters *triple* your carrier mileage.
- ☑ And Kellogg repeaters are surprisingly low in cost!
- ☑ Kellogg Carrier offers more exclusive features than any other system on the market (see facing page).
- ☑ Kellogg's low price is complete, "no extras."

That's why you'll find Kellogg K-31 Rural Subscriber Carrier being installed by more and more independents across the country.

For more details on Kellogg Carrier see our ad on the facing page, then . . . call Kellogg for complete information.

KELLOGG
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Ill.
Communications Division of International Telephone and Telegraph Corporation.

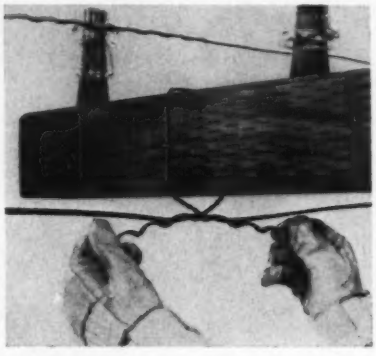
See pages 4-5 for list of Kellogg offices

(1) Where pole climbing clearance is required.

(2) Where ground clearance would be insufficient, using conventional methods.

(3) Where a greater number of wires demand the use of the crossarms instead of the pole.

Attachment of the "cabled loop" to the crossarm by means of two standard staples is fast and simple, and the



helical legs are wrapped onto the wire by hand in a few quick twists. Thus, uniformity of application is assured, states Preformed. When completed, the assembly presents a slim-line silhouette, has permanency, and a minimum holding strength of 150 pounds under unbalanced loading conditions.

Preformed crossarm tangent supports are made of stainless steel with neoprene-coated legs which protectively "cradle" the wire, eliminating the need for separate cushioning devices to prevent abrasion, according to the company. The fittings are immediately available for wire sizes 2 number 14 and 2 number 12 copper covered steel and 2 number .083 steel. Request NP1206.

•

OSCILLATING HYDRAULIC DERRICK—The McCabe-Powers Body Co. has announced an all-new oscillating hydaulic derrick in its line of "Pole-Master" fully-powered derricks.

The new unit is designated the Series PM-30 "Pole-Master" and has a vertical operating arc of more than 200 degrees—extending from stowed position above the body to just above the ground. The head sheave can be spotted at any point in this arc.

In addition to vertical movement, the PM-30 "adds a new time-saving dimension to derrick operation," says the company. It can be moved horizontally, at any angle of elevation, to any point in a 180-degree arc which reaches from one side of the body to the other.

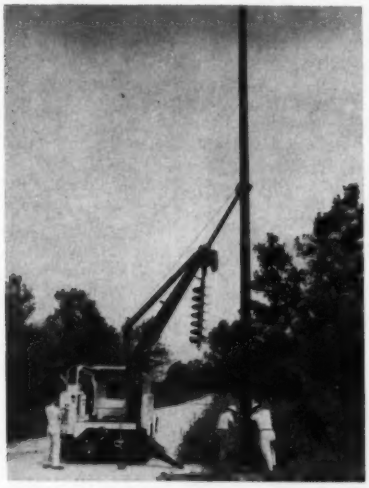
"The new PM-30 saves time on every job," stated Brooke Daly, company vice

president, "because it can be spotted quickly without maneuvering the truck into a specific position for each derrick operation."

The derrick's horizontal and vertical movement permits working in places where limited space would prevent the use of conventional single-arc derricks. It is described as ideal for use in alleys and narrow streets. In congested areas, the truck can be parked parallel to the curb for handling the complete pole-setting job without blocking traffic.

Its versatility enables the PM-30 to handle the entire construction and maintenance operation with a smaller crew, according to Daly.

This derrick is suited for use with the Series DF-1 "Earth-Master" hydraulic digger, which digs up to 20



inches in diameter and 10 feet in depth. When not in use, the digger swings out of the way or can be locked in the stowage bracket on the derrick. The low reach of the derrick, plus more-than-ample down pressure which it can apply, assures efficient digger operation in any type of soil, the company asserts.

Although it is designed for use at curbside of the body, the PM-30 can also be used to the rear and to street-side of the truck, and, according to the company, it will body-load with ease.

The PM-30 derrick cannot creep or kick-back under load; and cannot fall in event of damage to the hydraulic system. Its controls, including those for the winch, body jack, pole jack and engine speed, can be installed on the rear body panel, as shown, or in a location selected by the user. In summary, the company says, all operation is hydraulically actuated, powered by a hydraulic pump driven by a power take-off installed on the truck transmission.

PM-30 derricks are available in two

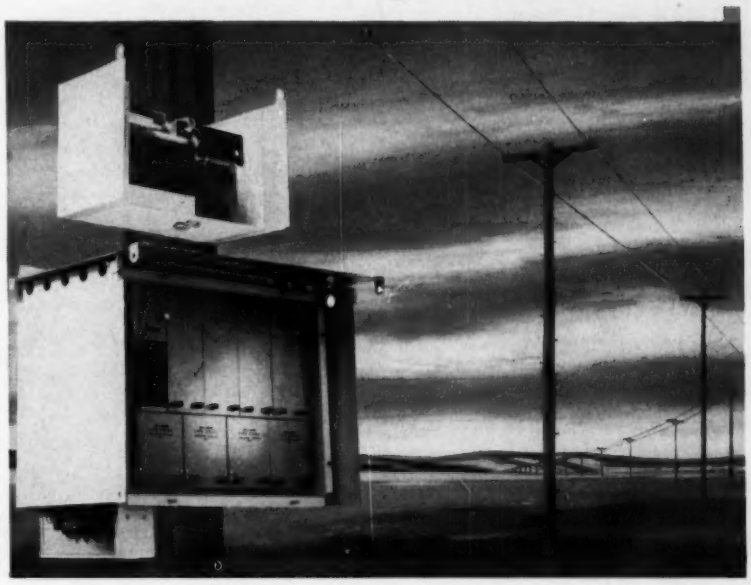
K-31

offers all these features

At Lower Cost

than any other

Carrier System!



☑ *Built-In Stand-By Power* as standard equipment! Sufficient to operate 4 channels for 12 hours if commercial power fails.

☑ *Built-In Compandors!* Reduce line noise and cross-talk on open wire line so that circuits meet transmission standards.

☑ *Automatic Regulation!* Maintains constant output level regardless of line loss variation due to changing weather conditions.

☑ *Completely Transistorized!* Including power supply! Guarantees steady toll quality performance.

Best of all, the low cost of the complete systems, "no extras," will enable you to prove it even on short distances.

Call Kellogg . . . and get full details on telephony's *most effective and economical* carrier system.

DON'T FORGET, only one relay is required for each terminal of Kellogg's K-32 Trunk Line Carrier.

KELLOGG Communications Division of IT&T
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Ill.
Communications Division of International Telephone and Telegraph Corporation.

See pages 4-5 for list of Kellogg offices

WHAT'S NEW AT

SUTTLE

Eliminate Induced Radio Noise!

SUTTLE announces a new W.E. equivalent product, the SE-1542-A Inductor with SE-101-A Cover, to solve completely one of the most irritating and costly maintenance problems confronting the telephone man. The SUTTLE SE-1542-A Inductor is a combination 4 terminal block and choke coil which eliminates completely induced radio noise at subscriber telephone locations. Replacement of the standard 4 terminal block at the telephone instrument with an SE-1542-A Inductor provides clear transmission, eliminating radio station broadcasts picked up by the telephone line by induction. *Every operating company will need several of these new SUTTLE units.* Uses SE-101-A plastic cover. Write or call SUTTLE or your nearest distributor for literature and prices.

4-Point Blocks and Plastic Covers

SUTTLE SE-42-A standard 4 terminal blocks and plastic non-shorting covers are now available in brown, ivory, black, or in the new blue-beige color. Completely shorting resistant, SE-42-A blocks and covers can be delivered immediately by SUTTLE or your distributor.

SE-42-A — $.36 each.

SUTTLE DIRECTORY COMPANY

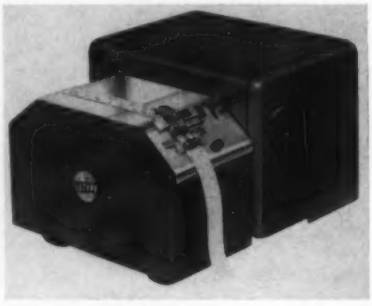
401 N. 15th St., Lawrenceville, Ill.
Phone: Lawrenceville 782
135 S. La Salle St., Chicago 3, Ill.
Phone: DEarborn 2-3108

sizes, each rated at 8,000 pounds. The PM-30-55, equipped with a head sheave which can be hydraulically extended or retracted a distance of 56 feet, has a maximum head sheave height of 26 feet—for handling 55-foot poles. The PM-30-40, having a fixed head sheave, has a maximum height of 21 feet 6 inches, and handles 40-foot poles. Request NP1207.

•

MINIATURIZED TAPE READER SET—The development of a punched-tape reader set—including transmitter-distributor, motor, base and cover—that is some 40 per cent smaller in size and weight than previous models, has been announced by the Teletype Corp.

Called the Model 28 miniaturized LXD set, the new smaller tape reader measures 5⅞ inches in height, 7½ inches in width and 9½ inches in depth. It features facilities for sequential (serial) output, hundred-word-per-minute transmission and reduced power requirements. Optional contacts are available for multi-wire output. Models may be had to read 5- or 6-level chadless or fully perforated tape.



The new set is suggested for a wide range of tape reading applications including on-line data transmission over existing communications facilities and off-line control of tape-operated factory or office machines.

In addition to over-all space economy, the company says, the set's compact size is expected to permit installation in spaces heretofore too small to utilize.

Components of the Model 28 miniaturized LXD set, such as the transmitter-distributor portion, are available separately (without motor, base or cover) for integration with systems equipment. Request NP1208.

•

POLE BORING BIT — A new wood bit for easier and faster non-stop boring in telephone and power poles has been developed by the Irwin Auger Bit Co.

Called the 415T Pole-Bor, this new Irwin bit is designed to eliminate the problem of clogging, binding and stopping to clear chips, particularly in hard-to-bore creosoted poles or heavy construction timber.

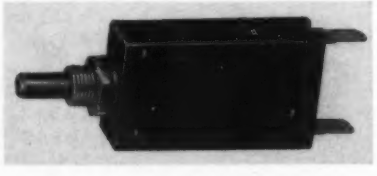
The company explains that the combination of specially designed cutting head, twist angle, smooth polished hollows, spur, and side lip, guarantees a continuous chip flow and smoother holes for easier insertion of bolts and pins.

A new patented adapter shank permits the Pole-Bor bit to be used in both hand braces and electric drills to speed work on the job and is said to cut inventory costs by as much as 50 per cent.

The overall length of the Irwin 415T Pole-Bor bit is approximately 18 inches, with 12-inch twist and 6-inch shank. Twelve sizes are now available from 6/16 inch to 17/16 inch. Request NP1209.

•

MINIATURE CIRCUIT BREAKER—E-T-A Products Co. of America has introduced its Model 45-700-P miniature circuit breaker designed to eliminate nuisance or accidental circuit interruptions.



The trip-free mechanism prevents breaker reset while overload conditions prevail, E-T-A states. Depression of the reset button will not interrupt the circuit once the breaker is closed.

Described as compact and simple in

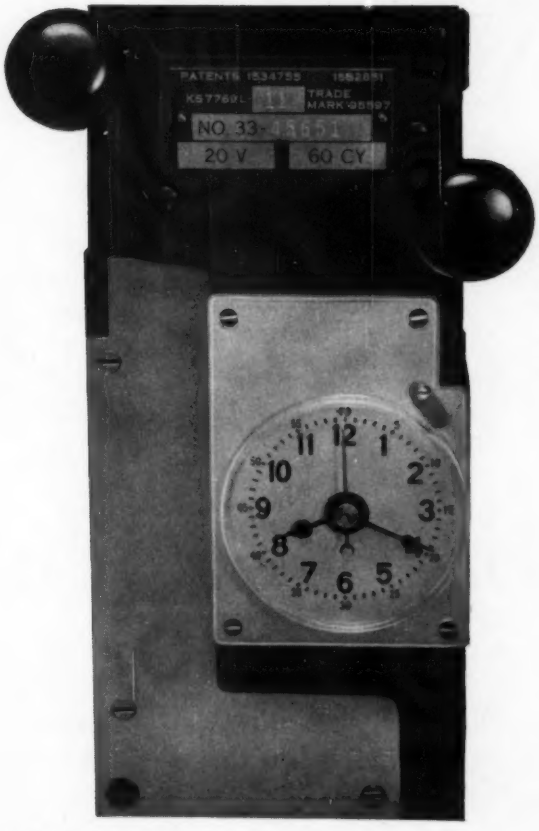
(Continued on page 47)

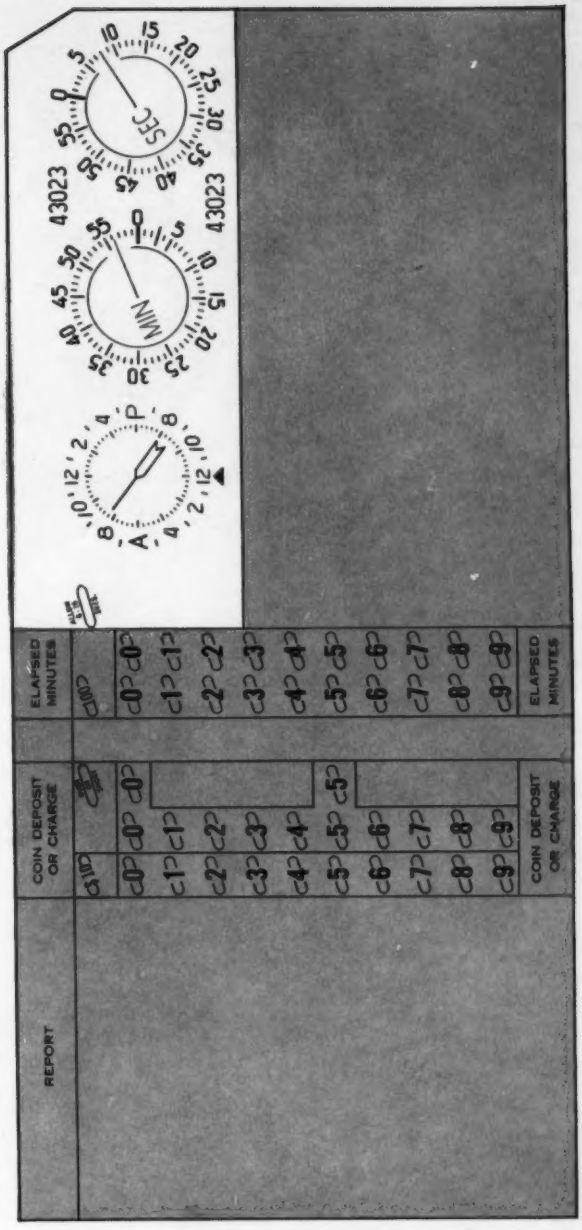
CALCULAGRAPH IS READY FOR MARK SENSING NOW!

If you are planning to use mark sense toll tickets now (or later) be sure your Calculagraphs are readily adaptable. Remember to do these three things now—

1. When ordering new Calculagraphs specify "set back" handles—this feature clears the way for mark sense toll tickets (or ANY SIZE ticket in fact).
2. Plan a program of modification of Calculagraphs now on your switchboard.
3. If you are still using the old round-type Calculagraphs, consider the economics of replacing them with the new space-saving Model 33 that will include all the latest improvements—set back handle, color-coded handles for easier operation and 60-minute dial to assure 100% accuracy on all calls.

If your analysis shows that mark sensing makes sense economically, or your present system requires a larger size ticket, consult your Calculagraph distributor today. Ask him about the set back handle feature as well as other modernization features of the NEW Calculagraph.

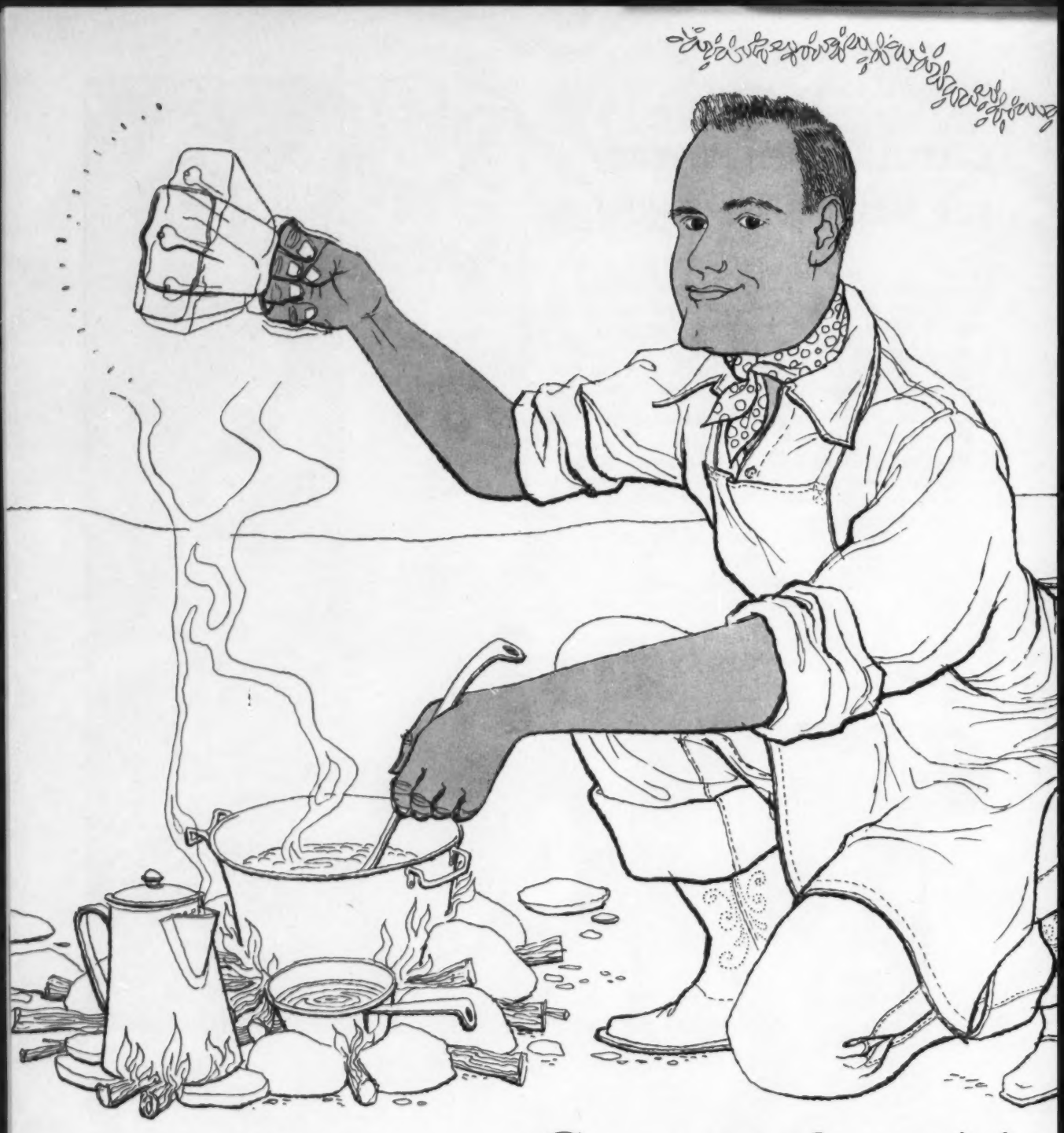




CALCULAGRAPH Company

312 Sussex Street • Harrison, New Jersey
Telephone: HUmboldt 2-0213

Manufacturers of Elapsed Time Recorders for over 65 years



Come and get it!

Yessir, podners—we got as many construction materials and supplies as the King Ranch has critters! So keep your orders coming! We'll rustle up your goods faster 'n Wyatt Earp could draw!

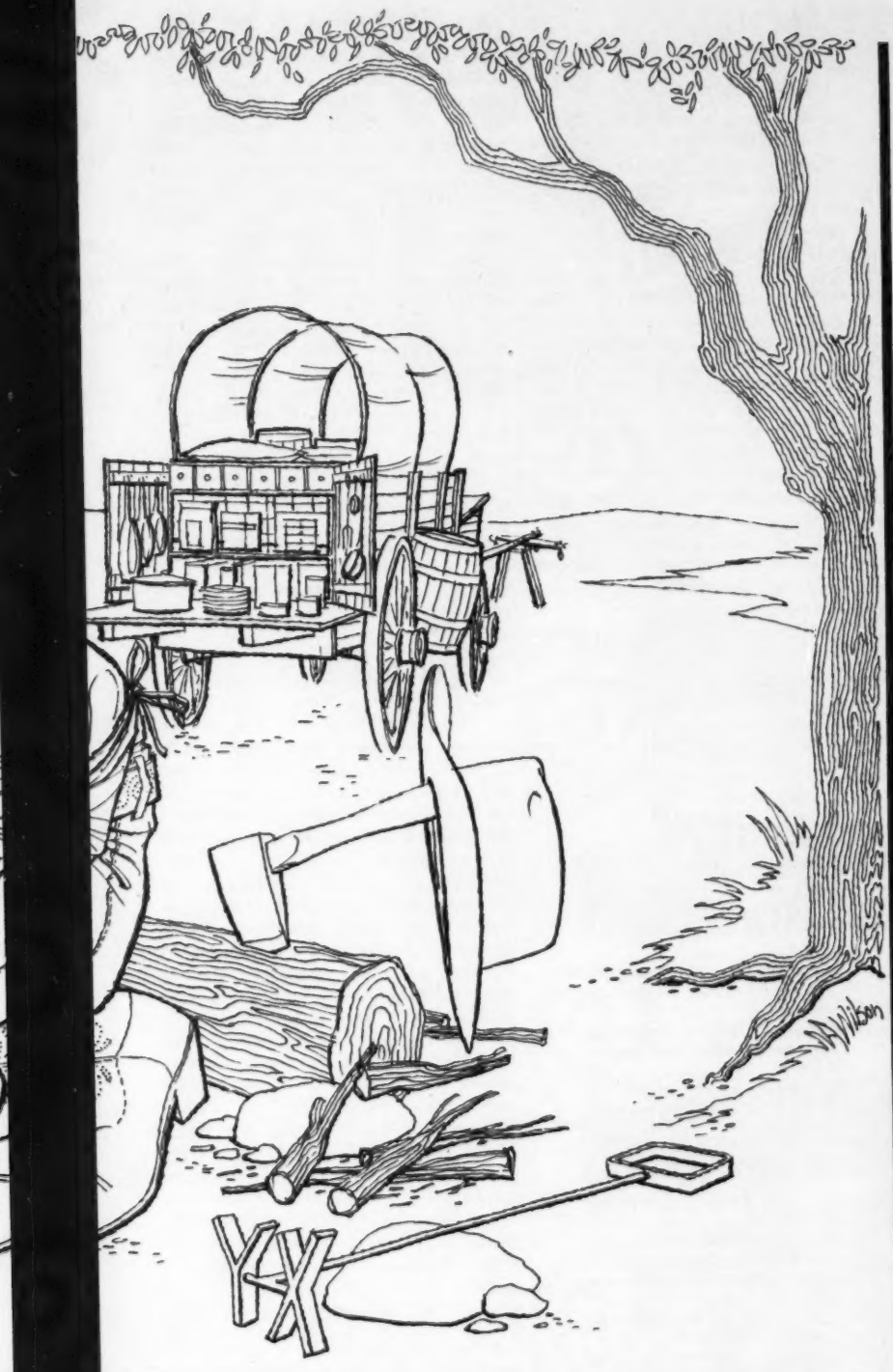
Reason we can give you lightnin'-fast action is we got spreads all over the territory. We're a big outfit—but not too big! Just right to round up what you need and put it on the trail.

We got top hands, too. Not a tenderfoot in the bunch. What they don't know about this business

STROMBERG-CARLSON

A DIVISION OF **GENERAL DYNAMICS CORPORATION**

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630



of construction materials and supplies wouldn't fit in a gopher's ear.

So look for that good old XY® brand, podners! We sure appreciate your business. And that goes for all the boys in the bunkhouse.

JOE MULLIN
is a top hand in our Kansas City spread.

design, the 45-700-P provides circuit protection for such applications as appliances, tools, motors, electronic equipment and other electrical devices.

The unit can be installed singly or in banks and will cope with surge currents up to five times rated current, the company reports. It will carry continuous current at an ambient temperature of +68°F.

Models are available with ratings from .05 to 25 amps. Custom units for specific applications are also available. Request NP1210.

TELEPHONE GROWTH

Concluded from page 38

country's population growth, business expansion, new homes, rebuilt housing, and new families, puts the prospective 1970 level at double that for 1956.

The telephone density trend in the United States indicates that in 1970 there will be approximately 56.6 telephones per 100 of population, compared with roughly 39 telephones per 100 of population in service at the end of 1958. From January 1951 to December, 1958 the number of telephones in the nation increased from 43 million to 66.6 million.

In spite of the business slowdown during 1958, there were approximately 3 million telephones added to the nation's total, a number slightly greater than the total population growth of the country.

Estimates for 1959, including results thus far, indicate that the number of new telephones to be placed in service will exceed population growth of the country by more than 500 thousand, giving the nation more than 70.5 million telephones by the end of the year. The telephone growth rate this year approximates 5.5 per cent as compared with an annual population growth of 1.6 per cent.

Technological improvements and the broadened services and facilities the industry offers have placed the telephone within reach of the entire business and social community, thus increasing importance to the user, all of which contribute correspondingly to continuous healthy expansion, the BDSA division says.

The accompanying chart illustrates the trends on which the division study is based.

Let Justice Rule

"A better principle than this, that 'the majority shall rule,' is this other, that justice shall rule. 'Justice,' says the code of Justinian, 'is the constant and perpetual desire to render every man his due.'"—BOVEE.

IN THE NATION'S CAPITAL

Concluded from page 19

gesting that some stations could use less time for advertising or record playing or other "canned" production and give the customers a little more real entertainment. So, it can be seen that even without indulging in any preference or prejudice, the FCC has been advised to keep its nose strictly out of the content of programs—good, bad, or indifferent. The only justifiable exceptions, as already stated, would be in the case of obscenity, profanity, lottery promotion, and so forth.

Judging by the great volume of tripe, including the interminable parade of murder, violence, arson, treason (and what-have-you) which moves nightly over the airways, the TV and radio programmers take full advantage of this liberty of action. But if Chairman Harris' subcommittee comes up with much more evidence of marked cards and loaded dice on the quiz shows, chances are good that Congress will try to write a law giving the FCC some authority to act.

The opinion of the FCC will probably be asked, as is usual in such cases. And it would not be surprising if the FCC were somewhat hesitant about seeking authority along this line.

No matter how thin you slice it, this would still be a step in the direction of censorship. And it is a thankless responsibility to be put into the role of umpire of what is right and proper for American citizens at-large, and their children, to listen to or watch. Perhaps the whole situation could be best cleared up by a little self-policing on the part of the networks and the TV industry itself. It is hard to believe that these situations develop without somebody in the front office of the networks catching the faint odor of decay in Denmark.

Yet, even after the scandals had reached the stage of grand jury investigations, the efforts of intra-industrial policing were not noticeable. On the contrary, such network activity as took place in this area, appears to be in the direction of sweeping the whole affair under the rug.

One doubtful consolation, resulting from these disclosures, is a slight revival of self-confidence on the part of plain ordinary people who could not get to first base on some of these contests—contests which pre-teen kids seem to knock off without any trouble on the TV quiz shows. This writer must confess to having had past suspicions about these glamor dolls—who seemed to be better fitted for the front line of a chorus—calmly coming up with the most esoteric information about Byzantine architecture or obscure points of medieval history.

Now, in the light of these disclosures, whether we are right or wrong, (when we try to answer hard TV questions) we at least have the consolation of kidding ourselves that it is all a fake anyhow, and that those people on TV are not really so smart. In fact, this writer got so downright cheerful just thinking about this, one morning this week, that he drove right through a red light. And then the rosy feeling of self-confidence promptly evaporated when a red-faced traffic policeman barked in fury, "Hey you! Were you born that stupid, or did you have to study?" And so another day started out all wrong.

PLANT MAN'S NOTEBOOK

Concluded from page 27

Tex Weaver, Frank Russel, Shorty and little Kerosene Johnnie. I often wonder what has become of them, and if they are climbing poles today, it must be in the great beyond where a union card is not required.

Today, the construction foreman of the old school and the "boomer" are definitely out of the picture. The large gang is also a thing of the past as two men and a properly equipped truck can now accomplish more than 25 men of yesterday. The quality of work is probably no better, although improved methods and materials provide a more lasting and trouble-free plant at perhaps a lower cost.

Despite all this there was that something in the line gang of the yesteryears—romance, glamour or showmanship—that the present generation will never know for it has passed from the scene forever. Call it progress, if you will, toward a changing and better world.

•

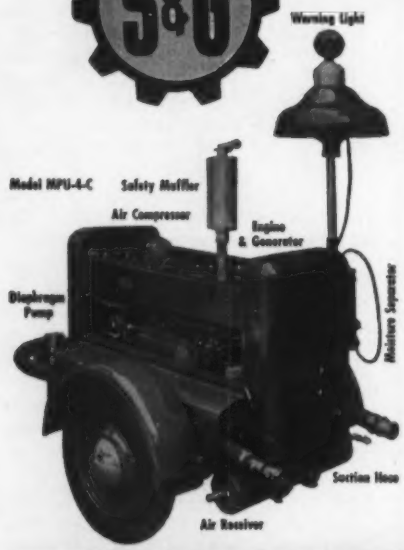
It is claimed that if we are too big to do little things willingly, we are probably too little to be trusted with big things.

•

All of industry spent less than 600 million dollars on research in 1941. It now spends upwards of 8 billion dollars of its own funds each year for this purpose.

dependable . . . versatile . . .

Mobile Power Unit



- Generator (slow speed for quietness) 2500 Watt, 110-Volt DC
- Pump—2800 GPH Diaphragm to remove seepage and drain back
- Air Compressor—to put cables under pressure for cut-overs or repairs *Furnished with or without pump and compressor*
- 300-Watt floodlight illuminates working area
- operates soldering pot and iron, electric and air tools
- electric blower to ventilate manhole
- supplies dry air for cable cut-overs, flash testing, etc.
- diaphragm pump can be operated from manhole by push button control
- buzzer signal for summoning helper
- light, easy to handle

S & G MANUFACTURING CORPORATION
P. O. Box 1309 • New Orleans 10, La. • JAckson 5-3142

ABC OF THE TELEPHONE

Continued from page 23

(2) *Support strand and metallic aerial cable sheath if the cable sheath or strand is connected to a central office ground or an underground cable connected to a central office ground.* A sheath or strand that is adequately grounded by low resistance aerial cable grounds or by connections to a power company multi-grounded neutral also may be used.

High resistance ground connections, while, not nearly as effective as low resistance grounds, can be used to advantage in reducing the hazard of induced voltages. Typical higher resistance ground connections are provided by:

(1) Single and multiple telephone ground rod installations where the resistance is high and nothing is done to improve the quality of the ground.

(2) Down guys and anchor rods.

Deep driven ground rods usually are considered to be in the low resistance classification. Generally, the resistance of a deep driven ground rod is measured during installation. The rod is driven deeper until a good low resistance ground is obtained.

The temporary protective grounds are usually connected directly to the open wire line, as shown in *Fig. 6.* A split bolt connector or some similar device can be used to advantage for this purpose.

Construction costs can be held to a minimum if the ground connections established for protection during installation can also be used for permanent protection of the line. Perhaps the best approach is to establish a permanent protective ground wherever protection is to be installed on the completed line. These permanent grounds can be temporarily connected directly to the line wire. As the line is completed, the grounds can be transferred to the open wire protection equipment installed to provide permanent protection for the line.

Protection of Open Wires Being Installed on Joint-Use Poles. Open wire lines being installed on joint use poles should be protected during the various stringing, tensioning, sagging, and tying operations, as follows:

(1) The line conductors should be connected to a low resistance ground at intervals of approximately 20 ohms along the line. For some of the high tensile strength ferrous metal wires, a ground would be required at approximately ½ mile intervals along the line. A 104-30 per cent conductivity copper covered steel wire would require protection at one mile intervals on this basis. Protection would be placed at 2-mile intervals if the wire were 104-

Comtel®
U.S. PAT. 2,844,720

DATA TRANSMISSION and TELEGRAPH TERMINALS

RFL TERMINAL EQUIPMENT
Is being used with satisfaction by Railroads, Pipe Lines, Telephone Companies, Toll Highways, and Public Utilities throughout the world.

Radio Frequency Laboratories offers a complete line of models which are available with various features included to insure lowest possible cost to the customer for a given installation and application. Therefore, he is never penalized cost-wise for equipment features not desired or required.

The equipments are extremely versatile and, therefore, may be utilized in practically all data transmission and telegraph applications. A number of accessory equipments are available such as electronic and relay repeaters, party line keyers, DC hybrids, etc., to insure system compatibility.

MODEL 995

Low cost frequency shift telegraph terminal including all essential controls, power supplies and utilizes printed circuit modules.

The Model 995 is an all electronic terminal designed for data transmission and telegraph applications at speeds up to 100 wpm. The equipment comes complete with all necessary filters, equipment and loop power supplies and is available packaged as either a single or dual unit. Fourteen 100 wpm channels are available from 765/2975 cps.

MODEL 1601C

Data Transmission and Telegraph Terminal featuring plug-in frequency determining components, jack fields, and high speed circuitry.

The Model 1601C retains all the features of the Model 995 and offers the additional advantages of a carrier and loop jack field accessible through the front cover and plug-in frequency determining components. Channel arrangements are available to permit operation of either eighteen 100 wpm, twenty-five 75 wpm, or six 200 wpm channels between 400 and 3300 cps.

MODEL 1220

Completely transistorized Terminal temperature stabilized for long life, reliable service at reduced power requirements.

The Model 1220 retains the essential features of the Model 1601 but is a completely transistorized unit which may be operated directly from batteries with very low current drain or normal AC power facilities. The equipment is completely modular in design and accessory jack fields, power supplies, and front panels are available as required.

SEND FOR TECH. DATA

For additional information, including application data, write or phone DE 4-3100. Demonstrations available by local representatives.

WE CAN HELP YOU — Our Applications Department is ready to assist you in your control, telemetering or communications problem.

RFL Radio Frequency LABORATORIES, INC. Boonton, New Jersey, U.S.A.

40 per cent conductivity copper covered steel.

(2) High resistance grounds should be used if low resistance grounds cannot be obtained for temporary protection. Low resistance grounds should be a primary objective for permanent protection. The quality of protection provided for an open wire line, aerial cable, buried cable, or multi-pair distribution wire is governed both by the effectiveness of the protection equipment and by the quality of the ground connection. The better the ground the better the protection—all other things being equal.

(3) Stationary reels should be grounded.

(4) The lines should be grounded at the beginning of a run whether the lines are to be permanently dead ended or snubbed to a pole.

Certain factors should be given special consideration when establishing protection for open wire lines on joint use poles. These factors have been mentioned previously and they should be emphasized at this point:

(1) High resistance grounds do not provide adequate protection against accidental contact with power lines. High resistance grounds, however, will generally reduce induced power line voltages to safe levels.

(2) No protection against contacts with power lines can be provided by grounding when low resistance grounds cannot be obtained. Perhaps the stringing operations can be delayed under these circumstances until low resistance grounds can be installed. Extra precautions should be taken to provide protection by maintaining proper separation of power line and open wire conductors when the line must be placed before low resistance grounds can be established.

(3) Ground connections should be maintained during tying in operations. Jumper wires and similar temporary connectors can be used for this purpose.

(4) Temporary ground connections should be maintained until protection equipment is installed. This applies especially to those instances where drainage units are specified for protection against the hazard of induced power line voltages.

Protection of Open Wire Lines During Installation on Non-Joint Use Lines. Open wire lines may pick up static charges from dust or other fine particles blowing through the air. For this reason, the wires should be connected to either low or high resistance grounds during installation. Grounding of the wires during installation is always a good safety measure. However, grounding becomes essential when drainage units are specified for protection of the completed lines.

Wear Rubber Gloves when Installing Open Wire. Rubber gloves should be worn by linemen placing open wire whenever the lines are exposed to any power wires. Ordinary power company service drops are included as hazardous power wires. Rubber gloves add to the safety of the job and are equally as important as grounding the lines.

Rubber gloves do not eliminate the need for providing temporary protection of the wires. This is true for the same reason that placing protective grounds does not eliminate the need to wear rubber gloves during the stringing operations. Both protective measures add to the safety of the job—and that's why both should be used to provide maximum safety.

(To Be Continued)

PWC

TELEPHONE CABLES

For Every Application

AERIAL AND DUCT

TYPE 200

Specifically designed for use aerially supported by messenger or underground in ducts.

Conforms to REA Specification PE-22 and IPCEA Type I S-55-434.

Available in No. 19, 22, 24 and 26 AWG from 6 to 400 pairs.

Fully color coded with all pairs guaranteed.

Longitudinal 8 mil aluminum shield corrugated on large diameter cables for flexibility.

Black polyethylene outer sheath.

THE
PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.

STATEMENT OF OWNERSHIP

Statement required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233), showing the ownership, management and circulation of TELEPHONY, published weekly at Chicago, Ill., for October 1, 1958.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Telephony Publishing Corp., 608 S. Dearborn St., Chicago 5, Ill.; editor, Ralph C. Reno, 608 S. Dearborn St., Chicago 5, Ill.; managing editor, Dan S. Fargo, 608 S. Dearborn St., Chicago 5, Ill., and business manager, H. D. Fargo, Jr., 608 S. Dearborn St., Chicago 5, Ill.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as those of each individual member, must be given.)

Telephony Publishing Corp., 608 S. Dearborn St., Chicago 5, Ill.; H. D. Fargo, Jr., 608 S. Dearborn St., Chicago 5, Ill.; Ralph C. Reno, 608 S. Dearborn St., Chicago 5, Ill.; A. J. Stults, 608 S. Dearborn St., Chicago 5, Ill., and Dan S. Fargo, 608 S. Dearborn St., Chicago 5, Ill.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 12,522.

RALPH C. RENO.

Sworn to and subscribed before me this 24th day of September, 1959.

ALBERT J. STULTS.

(My commission expires November 13, 1960.)

ARKANSAS CONVENTION

Concluded from page 28

live in a political world and conduct yourselves to meet the challenge.

(2) Inform your subscribers about your business and the telephone business in general.

(3) Tithe your time and effort toward building your community. Devote a minimum of 10 per cent of your time and effort toward building your community economically, morally and spiritually.

(4) Stand up and be counted on the side of right in any question affecting your community, business, or family—even if it takes the "hide" off.

(5) Furnish the best quality and greatest quantity of telephone service to your subscribers that is within your ability to furnish at a profit.

Mr. Garrett also gave a resume of the progress of Arkansas companies. He said that of the 61 Arkansas companies, 25 are now 100 per cent dial. Eighteen more have announced definite plans to complete their conversions.

Approximately 75 per cent of the 205 Independent exchanges in Arkansas are now dial, and this tops all other states in the Southwest region, he said.

In addition, Arkansas Independents will reach 100,000 stations by the end of this year, and one out of every four telephones in the state belongs to an Independent.

Kay Adair of Star City was another narrator for the "Sales and Frails" skit.

Following through with the "Better Business Climate" theme, educational workshops were held. An address was given by the advertising manager of the Arkansas Power & Light Co., Bob Wimberly, who stressed the importance of the "little services" in utility operations. Fred Pickens, a Newport attorney and convention speaker emphasized that the "personal service" you give can never become obsolete.

The highlight of the convention was the Small Company Committee's presentation, "Sales and Frails." A musical theme was used to connect bits of narration stressing ways to improve telephone business and margin of profit.

The Marked Tree Girls' Ensemble sang original songs about telephone sales and service.

"Pop" Hodge authored the script and directed the girls ensemble. Narrators for the presentation were L. V. Ritter Jr., Kay Adair, and Mel Ladd.

New officers for the ensuing year are President, Leo Bryant of Leachville; first vice president, Omer Sanders of Danville; second vice president, Ernie Wommack of De Queen; and secretary-treasurer, John E. Shaffer of Gentry.

The new president accepted the resignation of Lois Kehoe, who has been executive secretary of the association since 1950. On behalf of the Arkansas members he presented her with a diamond studded watch for her service.

Presenting now the

New and Improved Murphy Silent Buzzer

Models SBT-2 and SBR-2 (all sets shipped after June 1, 1959)

FOR 2-MAN TESTING TO IDENTIFY CABLE PAIRS IN NEW OR WORKING CABLES—WITHOUT INTERFERENCE—EVEN ON BUSY LINES

SBT-2

- Eliminates monitoring for busy lines
- Never disturbs any line
- Super-heterodyne circuit, battery powered

SBR-2

- Faster testing to identify pairs
- Loud clear two-tone signal to splicer and helper
- Compact and light, 3x4x5 inches

1. Increased power for the Transmitter for the longest loaded cables—without interference
2. Increased Receiver sensitivity—now 7 transistors—for efficient pick-up with the capacity probe
3. Smoother and less critical volume control, no overloading of early stages on shorter cable runs
4. Spare probe tip holder moved to the top of each case instead of attaching to the cord plugs
5. Improved capacity probe, 10 times greater pick-up, can be "hooked" onto proper pair with one hand and pair moved and held away from other pairs for positive identification
6. Two slide switches have been replaced by a single rotary switch, for simpler and more dependable operation
7. Instructions included for a simple connection on the Receiver to convert it to a source of low frequency tone—so that the splicer can pick out a spare pair for a talking pair and the helper can locate it in the central office with a monitoring set
8. A convenient and durable carrying case is now available for carrying the silent buzzer, all cords, batteries, the Field Test Board and the Speed Tester for maximum protection during storage and transportation
9. In use on a busy line, neither the splicer nor helper can hear any part of the subscriber's conversation
10. Transmitter uses only 5 ma from a 4½ V battery. Receiver uses only 6 ma from a 4½ V battery, or a total for both of only 49.5 milliwatts—from low cost batteries.

Net price $194.00 per pair—f.o.b. Houston, Texas.
Shipping schedule—90 days. Write for additional information on this and other telephone test equipment manufactured by

ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE

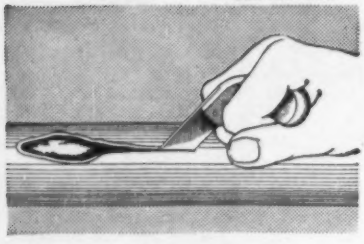
MURPHY ENGINEERING LABORATORIES, Inc.

4419 Tulsa — Houston 24, Texas

NEW KLEIN
slitting tool
for all types of control cable

Patents 2398979
2691822

Cat. No. 1558



Here is a new tool developed by Klein, designed to slit insulation from flexible cords, PWC, telephone cable with vinyl or polyethylene jackets and bus drop.

Handle of cast aluminum, light in weight and with convenient grip; knife of tempered tool steel may be sharpened and is easily removed for replacement. This tool slits insulation from a few inches to as many feet as desired swiftly and simply. Does not damage conductors inside weatherproof sheath.

Write for bulletin giving complete information.

FREE POCKET TOOL GUIDE

A free copy of the new Klein Pocket Tool Guide will be sent on request without obligation.

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp. New York

Mathias KLEIN & Sons
Established 1857 — Chicago 45, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45 ILLINOIS

Brownwood, Tex. Mayor W. C. Carpenter (left) presenting a bronze plaque to D. T. Strickland, vice president and general manager of The Southwestern States Telephone Co., in appreciation from citizens for the company's contribution "to the civic, cultural, and economic life" of the city.

OUTER SPACE TERMINAL

Concluded from page 26

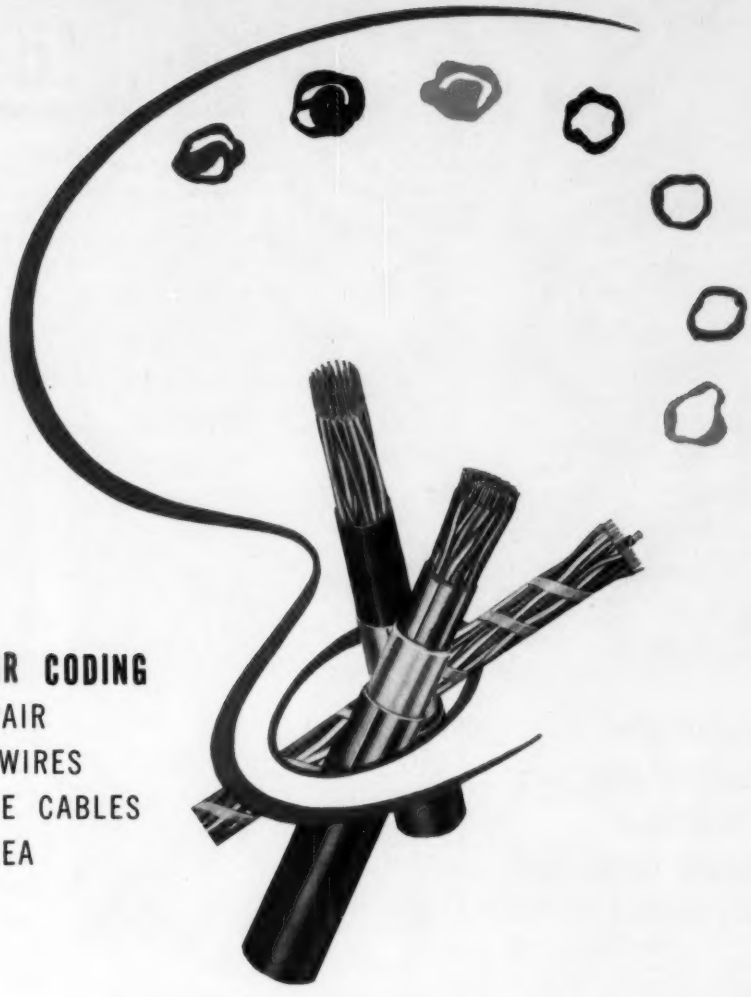
element of a parametric amplifier is a semi-conductor. MASER is short for "microwave amplification by stimulated emission of radiation." The central element is a ruby crystal contained in a liquid helium "refrigerator" at a temperature approaching absolute zero—about 460 degrees below zero (F.).

One of the initial and crucial problems in these experiments will be tracking speeding satelliites precisely, and for this purpose Bell Laboratories will devise its own special equipment. Data predicting the "passes" of satellites will arrive in coded form and the new equipment will rapidly convert the information into a form suitable for controlling the antennas.

The first proposal for a system of satellite communications was offered in 1945 by A. C. Clarke. In 1955 Dr. John R. Pierce, director of communications research at Bell Laboratories, proposed this system of passive satellite relays.

Since then Bell Laboratories has developed many of the devices required for the tests. Dr. W. C. Jakes Jr. is project engineer at the Holmdel site.

An automatic slide projector which showed color slides of 40 offices of telephone companies in the area attracted a great deal of interest to the Western Counties Telephone Association's display at the Western Fair held in London, Ontario, Canada, Sept. 14 to Sept. 19. Each slide was given about four seconds exposure and it took about three minutes to go through the group. Visitors often would wait around to see their office come up for a second time. Color telephones were also shown on the screen and 10 different colored instruments were displayed at the exhibit. Over 350,000 persons attended the fair.



New
Universal COLOR CODING
for all MULTIPAIR
DISTRIBUTION WIRES
AND TELEPHONE CABLES
as listed by REA

For complete information on new color codings, write for Bulletin R1058.

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Completions
Span The Earth

Established
Engineering
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in any climate,
any location

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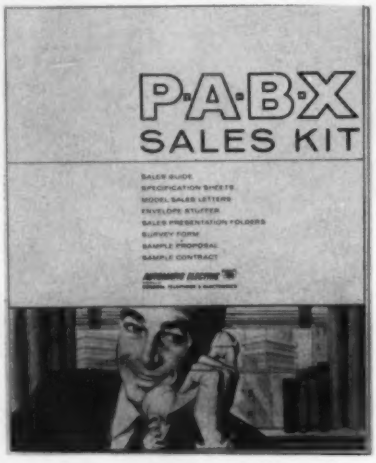
Helpful Literature

PABX SALES KITS—A new "1960 PABX sales kit" is now available from Automatic Electric Sales Corp.

The handy jacket-folder contains what the company describes as a complete merchandising package of materials to promote the sale of PABX and its auxiliary services for Independent telephone companies.

Featured in the kit is a sales guide that shows the user how to plan a sales campaign from contacting the prospect to signing the contract.



Included with the sales guide are specification sheets, model sales letters, envelope stuffer, sales presentation folders, survey form, sample proposal, and a typical contract. Request HL524.

SAMPLE TIES KIT—A sample kit of Preformed communications ties is being offered by Preformed Line Products Co. to potential users who want to see at first hand how to make a "good tie."

Inside the package is a full scale assembly made up of a length of line wire, an insulator, and a Preformed communications tie. The unit is described as effectively demonstrating the "cradling" design of the tie, which eliminates direct contact between the conductor and insulator.

The inside surfaces of the kit are used to feature by printed word other important benefits claimed by Preformed such as:

(1) Fast, easy hand installation and uniformity of application.

(2) Saving of labor, time, and material.

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

HL524_____; HL525_____; HL526_____; HL527_____;

HL528_____; HL529_____; HL530_____.

Company.....

Street.....

Town and State.....

10/17/59

(3) Greatly extended service life of lines.
(4) Positive holding strength under unbalanced loading and elimination of sheared-off insulator heads.
(5) Laboratory and field-tested performance.

Six samples are included underneath the assembly insert. Since the Preformed communications ties are made to accommodate specific insulator types and line wire sizes, these samples are furnished to correspond to the users' own system specification.

A lineman's application procedure pocket-size booklet is contained within an envelope inside the cover of the kit. Request HL525.

•

POLYETHYLENE WIRE COVERING —A new Technical Data bulletin just released by U. S. Industrial Chemicals Co. reports the benefits in Petrothene® polyethylene for line wire covering. The new bulletin compares polyethylene, neoprene and URC, for their various properties in line wire covering applications.

The first of two tables in the bulletin presents average mechanical properties such as tensile strength, tear resistance, abrasion resistance, etc., for polyethylene and neoprene.

The second table shows the nominal weights of finished weather-resistant wire and cable in pounds per 1,000 feet of wire.

Here, polyethylene, neoprene and URC are compared on copper and copper alloy as well as aluminum conductors.

U.S.I. points out that a major advantage of polyethylene over the other two materials is its low specific gravity. A weight saving of 20 to 50 per cent is said to be realized with polyethylene over the other two coverings on any given type of conductor.

The bulletin is reported to indicate that U.S.I.'s Petrothene resins 300-200 and 301-200 have the weathering and abrasion resistance necessary for wire and cable applications while at the same time possessing the important low specific gravity. Request HL526.

•

ELECTRONICS CATALOG — Special emphasis has been placed on electronic equipment for industry, in the new 1960 catalog just released by Allied Radio Corp.

Allied's new 528-page catalog, which includes 232 pages in rotogravure as well as four-color covers, lists over 40,000 items and is reported to be the largest catalog published by any electronics supply house.

The catalog is said to include exten-

Transite's installed cost is less because your crews spend virtually all of their time with the actual installation of duct.

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Here's why Transite Telephone Ducts offer these substantial savings in installed cost!

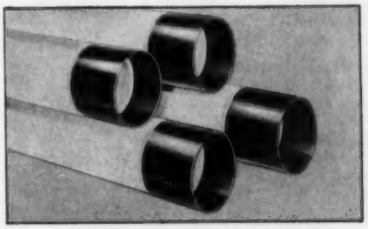
In virtually every part of the nation installations of Transite® Telephone Ducts are at a new high!

Why? For the simple reason that no other material offers so many practical advantages . . . with each contributing to lower *installed* costs. In fact, savings can run as high as 15¢ per duct foot!

With Transite you're working faster, easier . . . with smaller crews. For there's no complex joining and difficult positioning. Instead, the 10' Transite lengths are easily handled by one man. And the plastic coupling used with Transite makes a tight joint that goes together in seconds . . . stays tight for the life of the line.

More time and labor are saved in splaying...curving...bypassing...and in manhole connections! Every one of these on-the-job requirements is met with a minimum of "extra" in time and material.

With Transite you have fewer items to stock, less warehousing, lower inventory costs. There's less handling of material all around. As for breakage, there's practically none. Savings are substantial.



Write today for brochure TR-239A, "Transite Telephone Ducts." It gives complete information on why Transite's installed cost is lower . . . as well as why it reduces future costs in cleaning, rodding and repair. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ont.

JOHNS-MANVILLE JM PRODUCTS

sive listings of parts and equipment for industrial maintenance, research, and production requirements. Of interest to the purchaser, are such features as immediate delivery from stock, factory prices, and quantity discounts.

Listings include standard and special-purpose electronic tubes, transistors, semiconductors, and diodes, test instruments, voltage stabilizers, transformers, attenuators and controls, resistors, capacitors, printed circuit components, potentiometers, rheostats, relays, switches, connectors, rectifiers, fuses, tools, wire and cable, photo-electric components, two-way radio communications equipment, closed-circuit TV systems, sound-powered telephones, counters, motors, program clocks, timers, batteries, sockets, generators, power supplies and a wide variety of other electronic equipment and components.

The rotogravure section includes a presentation of the new Knight U.L.-Approved public address amplifiers used in systems ranging from 8 to 60 watts.

A large section on high-fidelity equipment is included as is a special selection of stereophonic records and tapes.

The Allied Knight-Kit line of 70 electronic kits includes such professional-quality instruments as oscilloscopes, tube tester, capacity checker, transistor and diode checker, signal tracer, audio generator, VTVM and VOM kits.

The Knight-Kit line is highlighted, according to Allied, by two newly developed units for critical laboratory applications—a 5-inch dc lab scope with choice of plug-in interchangeable vertical amplifiers (high-gain, wide-band or dual-trace); and a new ac VTVM with self-seeking range selector that is said to automatically select the proper range when the probe is touched to the circuit under test.

Other kits are designed for hi-fi fans, experimenters, hobbyists, radio amateurs, and electronics training.

A complete technical book section includes publications covering radio, electronics and electricity.

Other listings include: communications equipment and radio amateur gear; fluorescent lighting units; lamps and accessories; phonographs and accessories; a tape recording equipment section, and a comprehensive listing of TV replacement parts and accessories. Request HL527.

•

SEMI-CONDUCTOR DIRECTORY—Also from Allied is edition Number 5 of this Semi-conductor directory.

This, according to the company, is a comprehensive directory and pricing guide to transistors, diodes and rectifiers produced by 16 leading domestic manufacturers. Over 2,100 types are in the directory including the latest high speed switching, high current power, zener and diffused junction mesa types.

Purchasing agents and engineers, Allied says, will receive assistance in locating the newest among control, entertainment, computer, and military transistors, diodes and rectifiers. Also included are the newest micro-diodes, variable capacitors, and photosensitive devices. Request HL528.

•

HOOK-ON VOLT AMMETER—Bulletin GEA-6292C (four pages) gives description, specifications and construction details of General Electric's pocket-size, hook-on volt ammeters for testing ac voltages.

The bulletin also lists applications, current ranges, accuracy percentage and operating instructions. Request HL529.

•

THERMAL MAGNETIC CIRCUITS—E-T-A Products Co. of America announces detailed information is available on its new circuit breakers fea-

turing model variations with and without auxiliary or alarm circuits.

These breakers are for use with computers, data processing equipment, communications and testing equipment. Request HL530.

Commercial Cord Announces New Distribution

Ellis M. Weld Jr., vice president of Commercial Cord Co., Inc., Clifton Springs, N. Y., announces the appointment of Leich Sales Corp., 427 W. Randolph St., Chicago, Ill., as exclusive nationwide distributor for its Comco Cord Line, effective Nov. 1.

By this new arrangement, Commercial Cord Co.'s Comco PVC-jacketed Spiraflex Retractile Cords, Nylon switchboard and operator cords and PVC straight cords will be stocked by and sold through Leich warehouse facilities in Genoa, Ill.; Youngstown, O.; Tampa, Fla.; Dallas, Tex., and Los Angeles. "In this manner," states Mr. Weld, "Comco customers and all users of telephone cords will receive faster delivery on orders and better service on all their requirements through the Leich organization."

Telephone system engineers and procurement officers are requested by Commercial Cord Co. to direct their inquiries on all types of Comco telephone cords to the Leich Sales Corp. through its local sales representatives.

Calling All Outdoorsmen

NOW BUY THE BEST FOR LESS

Outdoor Outfitters Company can supply you with all your outdoor clothing at less cost. The same top-quality items you'd find in leading outdoor clothing stores . . . the only thing different is the price.
You save money because Outdoor Outfitters is a company which only sells and specializes in outerwear for the outdoorsman.

Amazing new Scott Foam makes this underwear more comfortable in the coldest weather, yet lightweight and not too hot for wear in mild weather. Keeps you warm without weight on the job. The shirt has two different snap fastener positions to adjust the length. The pants have elastic waist. Knit collarette and wristlets. Comes in tan. Sizes: S, M, L, XL. (Post paid when remittance sent with order.)

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Appoint G. A. Strichman President of Kellogg

Appointment of George A. Strichman as president of Kellogg Switchboard & Supply Co., Chicago, Ill., communications division of International Telephone & Telegraph Corp., was announced Oct. 9. He succeeds to a position that has been vacant since May.

Mr. Strichman had been director of manufacturing services for the Raytheon Co. since June. His experience includes 11 years (1948-1959) with General Electric Co., where he was, successively, plant operations manager and reactor operations manager at the Knolls Atomic Power Laboratory, Schenectady, N. Y., and director of manufacturing (1957-1959) for the Small Aircraft Engine Department, Lynn, Mass.

G. A. STRICHMAN

Earlier, he had been associated with the Brown-Lipe-Chapin Division of General Motors Corp., Syracuse, N. Y., and superintendent and factory manager for Barr Mfg. Co., Weedsport, N. Y. He also operated an engineering and manufacturing consultant firm at White Plains, N. Y.

A native of Schenectady, Mr. Strichman is a graduate of Rensselaer Polytechnic Institute, Troy, N. Y.

Ramset Headquarters Moved To New Haven, Conn.

The Ramset Fastening System has moved its headquarters from Cleveland to New Haven, Conn., R. H. Benedict Jr., sales manager, announces. Ramset is part of the Winchester-Western Division of Olin Mathieson Chemical Corp., which has headquarters in New Haven.

Concurrent with its change in headquarters, Ramset has established dealer service facilities and warehouses in Los Angeles and East Alton, Ill. The West

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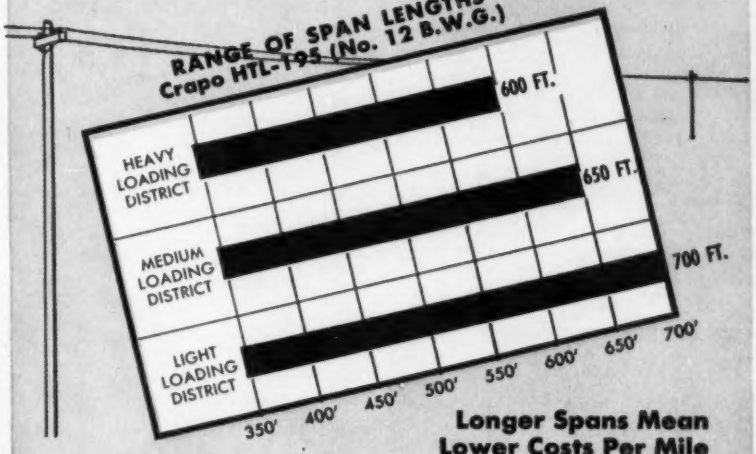
The NEW LOWER Resistance Extra-High Tensile Line Wire

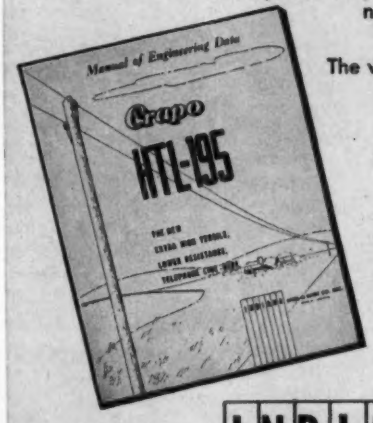


Longer Spans Mean Lower Costs Per Mile

You can cut the number of pole structures to a minimum when you use Crapo HTL-195 in building rural telephone lines. Extra long span construction, made possible by the high physical strength of this new wire, means marked savings in material and installation costs.

The voice transmission quality of Crapo HTL-195 is equal to that of Crapo HTL-135 and superior to older grades of ferrous wire.

Pertinent technical data have been prepared to assist engineers in designing and building extra long span lines with Crapo HTL-195.



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Tel-O-Pen desk set is beautifully molded in colors and materials to accurately match today's telephones. Precision made, high quality ball point pen to match. Receivers can be imprinted with name or initials. Each set individually boxed. Special price to telephone company employees $1.50 each. Sets are weighted to double in service as paper weights. A truly distinctive, handsome and practical accessory.

Write today for colors and other details.
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Coast office is under the direction of Ted R. McGary, customer service manager; the midwest office is directed by John W. Beall, customer service manager. Peter Caragher will act as customer service manager in New Haven.

The fastening tool manufacturer specializes in producing and selling Ramset powder-actuated fastening tools, Shure-Set hammer-in fastening tools and austempered steel fasteners. Austempering is a heat process which minimizes brittleness.

Ramset also distributes the Ringblaster kiln gun and Western kiln gun ammunition manufactured by Winchester-Western in East Alton, Ill.

Seward and Skagway Expand Vital Communications Links

In Seward and Skagway, Alaska, two of the 49th state's most important seaports—telephone service becomes the prime contact with the outside world when mail and newspaper delivery is suspended, air service halted, and highway travel, perilous.

Alaska is a land sometimes completely isolated during severe weather, and communications are a vital necessity in day-to-day existence.

Standing in new Seward, Alaska exchange building which is a part of a plant improvement program are, left, M. W. Leise, installation foreman for Automatic Electric Sales Corp., and Alaska Telephone Corp.'s Seward manager, John Viles.

To meet the need for improved communications, Alaska Telephone Corp., Seward, and Community Utilities, Inc., Skagway, have spent hundreds of thousands of dollars on telephone plant improvements.

Skagway has installed new Strowger automatic dial equipment and housed it in a metal building of galvanized sheet metal and ribbed iron wall and roof construction. The community's outside plant has also been completely rebuilt. Subscribers are furnished with terminal-per-station service with five-frequency harmonic ringing. Provisions are made for two, four, 10-party and main-line service.

Skagway toll lines connect with Juneau, Alaska's capital, via the Alaska Communications System. Underseas cable linking communications to Seattle terminate in Skagway.

Unlike Seward, the subscribers in Skagway have had the use of dial service for many years; the new equipment replaces a smaller, older system.

Seward improvements include a new, modern exchange and office building, a completely new outside plant, and a Strowger automatic dial switching system which replaced the old manual operations. Old lead cables of the outside plant gave way to plastic covered cable. New telephones went to subscribers with five-frequency harmonic ringing service on two-party, four-party, 10-party and main lines.

Seward's new switching gear offers terminal-per-station service and has been engineered to meet nationwide Direct Distance Dialing (DDD) requirements. Toll trunking facilities terminate 135 miles away in Anchorage, through lines and carrier equipment owned by the Alaska Railroad, and leased to the Alaska Communications System.

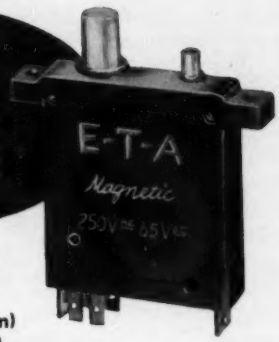
These utilities, operated by the United States Government, are supervised by the Department of the Army and the Department of the Interior.

The average American housewife takes her dial telephone for granted. But for subscribers in these towns—some who have never seen television—the new system means a faster, smoother link with the outside world.

Schultz New Head, Sales-Distribution, U. S. Motors

The United States Motors Corp. of Oshkosh, Wis., has announced the formation of new sales-service areas in the United States. In each area a sales-service organization either has

MINIATURE THERMAL MAGNETIC CIRCUIT BREAKER



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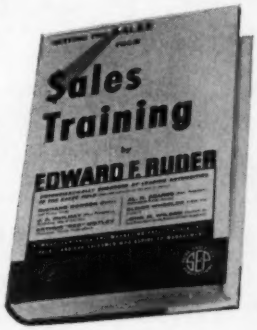
NEW TRAINING BOOK RECOMMENDED BY TELEPHONY

Here is a much-needed book on sales training for use by managers, department heads, superintendents, trainers, schools and libraries.



The newest training techniques are given practical application. Included are indoctrination, refresher and by mail training; memory, reading and speech improvement; and training supplements—sales contests, meetings, manuals, house organs, and new recruiting and hiring methods. This new book is enthusiastically endorsed by the top authorities—Arthur Motley, Pres., *Parade Publications;* Al Seares, V.P., Remington Rand; Elmer Wheeler, Consultant; John Wilson, Retired V.P. Sales, National Cash Register; J. McInnay, V.P., Marketing, Ray-O-Vac; Richard Borden, Consultant.

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Also used for guying, CF&I Galvanized Steel Strand made in seven- and three-wire constructions meets ASTM Specification A-122. Or it can be made to your individual specifications. For prompt delivery, call the nearby CF&I sales office or contact your local distributor.

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been appointed or is being selected. The purpose is to provide factory-trained personnel for service on United States Motors products, particularly Micro Power, and to afford engineering assistance in planning installations.

R. L. SCHULTZ

To establish and train the service representatives, U. S. Motors has appointed Robert L. Schultz as sales manager—distribution. He will make his headquarters in Oshkosh, and will be in charge of products distribution throughout the U.S.A. In addition to the other duties, he will maintain contacts with the large accounts.

Mr. Schultz is a graduate of Yale University and is a member of AIEE, ASME, and SMPE. He has been western regional sales manager of United States Motors Corp. and was located in San Francisco.

England's Siemens Exhibits Telephone Equipment

Siemens Edison Swan Ltd., one of England's largest telephone equipment firms, on Sept. 23 and 24 held an exhibition of its private telephone and marine equipment in Glasgow, Scotland. On Sept. 29 and 30, the exhibition—whose theme is: "Communications on land and sea"—appeared in Newcastle, England.

Among the main items exhibited is the company's new streamlined private automatic cordless switchboard; the new British Post Office telephone; two new special purpose versions of what is known in England as the Centenary Neophone; a large console unit for centralizing navigational instruments; and low, medium, and high power, and V.H.F. radio apparatus complete with "privacy" equipment.

Visitors will also see complete private telephone exchanges, automatic and manual; PABX switchboards for working with the B.P.O. network, office loudspeaker intercom telephones; staff location systems with fountain pen-size pocket receivers; what Siemens calls entryphones; public address equipment, and time keeping and watchman's control units.

The company plans to continue showing the display at the country's key industrial centers.

CF&I Corp. Names Jennings Wire Rope Sales Head

George C. Jennings has been named wire rope sales manager of the Colorado Fuel & Iron Corp., F. S. Jones, CF&I vice president in charge of sales, announced recently.

Mr. Jennings was formerly the company's New York district sales manager.

He joined CF&I in 1946 as the Buffalo district wire rope sales correspondent for the company's Wickwire Spencer Steel Division.

In 1947 he was named Buffalo district outside salesman for wire rope

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and structural and for mechanical specialties. He covered Ohio and parts of Kentucky, specializing in servicing wire rope users in the petroleum, mining, marine, industrial, and construction fields.

In 1953 Jennings was appointed assistant district manager of the Buffalo district office. From 1956, until his appointment as New York district sales manager in 1957, he also served as special representative in the sale of galvanized steel strand for CF&I's Eastern division.

As CF&I wire rope sales manager, Jennings will be located at the company's Palmer (Mass.) plant.

He succeeds A. S. Rairden, who has been named works manager at Palmer.

Before joining CF&I, the new sales manager worked for Bethlehem Steel Co., and the Allied Chemical Co.

During World War II, he served as a flight instructor for the Air Force Reserve, and later spent two years in the Pacific Theatre with the Marine Corps Reserve.

AE's Distinguished Student Retires After 34 Years

Alfred H. Belliveau, a man who at the age of 61 was elected to "Who's Who Among Students in American Universities," has retired from Automatic Electric Co. after more than 34 years with the Northlake, Ill. firm.

Mr. Belliveau joined the subsidiary of General Telephone & Electronics in 1925 after reading a book on automatic telephony which had been written by one of the company's engineers.

During his long service with the telephone manufacturing company, he served in the receiving inspection, quality control, and industrial engineering departments; and as an accountant, secretary and technical writer in the laboratory organization.

In 1944, he was promoted to the patent department. He became senior patent engineer in 1952.

A native of Fredericton, New Brunswick, Canada, Belliveau served as an infantry lieutenant with the Canadian Army from 1916 to 1917, when he became an officer-pilot with Great Britain's RAF.

While residing in New Brunswick, he attended St. Joseph's College. The war interrupted his studies, but he made up for it in the following years. Since 1923, Belliveau has made a steady trek to the doors of higher learning. His list of accomplishments includes diplomas in electricity, telephony, accounting, business management,

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ELIMINATES UNSIGHTLY OVERHEAD DROPS

PROVIDES EXTRA PAIR FOR SECOND PHONE

...and no other underground service wire can compare with Alphaduct for sheer ruggedness and trouble free service under unfavorable operating conditions. Alphaduct is engineered to withstand moisture, heat, abrasion, deformation and you get these PLUS FEATURES:

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HEAT STABILIZED POLYETHYLENE INSULATION

MINIMIZED CROSSTALK through control of side to side Capacitance Unbalance

ALUMINUM TAPED for electrical shielding against lightning and interference

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A. H. BELLIVEAU

and electrical engineering—all earned through studies taken at night schools and correspondence courses.

In 1950, at the age of 56, he began work on a B.A. degree at DePaul University's evening school. His expected one year at DePaul stretched into a five-year course when he learned that a fire at St. Joseph's had destroyed their records, and his credits were lost. He was graduated in 1955 with a straight "A" average, and elected to the college "Who's Who," plus several honor societies.

In the professional world, Belliveau has been credited with seven patents for the application of telephone-type relays and switches for industrial control and automation uses. He has held membership in the American Institute of Electrical Engineers, American Institute of Management, and the Western Society of Engineers.

He served on the board of directors of the Automatic Employes Credit Union for 16 years, and was president from 1950-1955.

Following retirement, Belliveau plans to move to Newburyport, Mass. He also thinks he'll go back to school—this time to study law.

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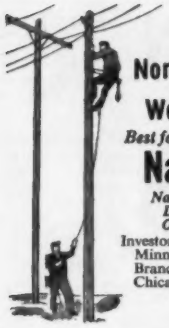

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Index to ADVERTISERS

	Page
Acker Co., Geo. M.	—
Acme Electronic Corporation	—
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	61
Altec Lansing Corp.	—
Aluminum Company of America	—
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	10-11
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	63
Auburn Machine Works, Inc.	—
Automatic Electric Sales Corp.	34-35, 43
Avnet Electronics Corp.	—
Baker Wood Division	63
Barber Advertising Specialties, Walt	—
Barber-Greene	13
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Bethlehem Steel Co.	39
Berry & Co., L. M.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
Bohnsack Equip. Co.	65
British Insulated Callenders' Cables, Ltd.	12
Brown Mfg. Company	—
Budelman Electronic Corporation	—
Buckeye Telephone & Supply Co.	64
Burgess-Manning Company	—
Burroughs Corp.	—
Butler Manufacturing Co.	—
B. Y. Dial Service	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	62
Cable Construction Co.	62
Cable Spinning Equipment Co.	—
Calculagraph Company	45
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Cleveland Inst. of Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	59
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Copperweld Steel Co.	—
Crane Inc., Carl C.	62
Cushman Motor Works, Inc.	—
Dahl Co., Inc., George W.	—
Dakota Engineering, Inc.	—
Dampp-Chaser, Inc.	—
Davis Construction Co.	62
Davis, Inc., Archie	62
Dial Haven, Inc.	65
Diamond Expansion Bolt Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Company	—
Duo-Safety Ladder Corp.	—
E. & C. Contracting Co.	62
E.T.A. Products Co. of America	59
Electric Specialty Co.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	—
Fairbanks, Morse & Co.	—
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	62
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Electric	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	16
Gladwin Plastics, Inc.	61
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris McBurney Company	—
Henkels & McCoy	63
Highway Trailer Company	—
Hirsch Organization Inc., Gustav	54
Holan Corp.	—
Indiana Steel & Wire Co.	57
International Telephone & Telegraph Co.	—
Irwin Auger Bit Co.	—
Jet Line Gun Company	—
Johns-Manville	55
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	4-5, 14-15, 42-43
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	62
Klein & Sons, Mathias	52
Kleinschmidt	—
Koiled Kords, Inc.	9
Koppers Co., Inc. Wood Preserving Div.	—
Leich Sales Corporation	6-7
Lindsay Telephone Supply Co.	—
Line Equipment Sales	65
Lorain Products Corp., The	—
Loris Sales	—
Magnolia Chemical Company, Inc.	—
Malleable Iron Fittings Co.	—
Mastercraft Pen Co.	58
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	62
Midwest Communications Service	62
Monsanto Chemical Co.	41
Morrison-Pelsue Co.	—
Mullen Construction Co.	62
Murphy Engineering Laboratories	51
Natco Corporation	—
National Pole & Treating Div.	63
National Standard Co.	—
National Telephone Supply Co.	68
Neuses, Inc., P. K.	62
North Electric Company	—
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Osmose Wood Preserving Co.	—
Outdoor Outfitters Inc.	56
Owens-Illinois	—
Page & Hill, Inc.	—
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	—
Piedmont Wood Preserving	—
Plastic Wire & Cable Corp.	50
Porter Inc., H. K.	—
Preformed Line Products Co.	—
Puregas Equipment Corp.	—
Radio Frequency Labs, Inc.	49
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	—
Rex Corporation, The	53
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Co.	48
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Siemens Edison Swan, Ltd.	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	62
Stahl Metal Products Co.	—
Stainless, Inc.	—
Stampings, Inc.	—
Stromberg-Carlson Co.	2-3, 46-47
Superior Cable Corporation	—
Suttle Equipment Corporation	44, 65
Taylor-Colquitt Co., The	—
Telectric Co.	63
T.E.I. Corp.	62
Tele-Muff Co.	—
Telephone Engineering Co. of California	62
Telkor, Inc.	63
Telsta Corporation	—
Tele-Wire Supply Co., Inc.	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	58
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	62
United Electric Controls Co.	—
United States Independent Telephone Association	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	67
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Creosote Division	—
Universal Controls Corp.	60
Utility Service Co., Inc.	—
Utility Tool & Body Co.	65
Warren Mfg. Co., Inc., The	—
Weikel Line Company	63
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	62
Winders & Geist Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

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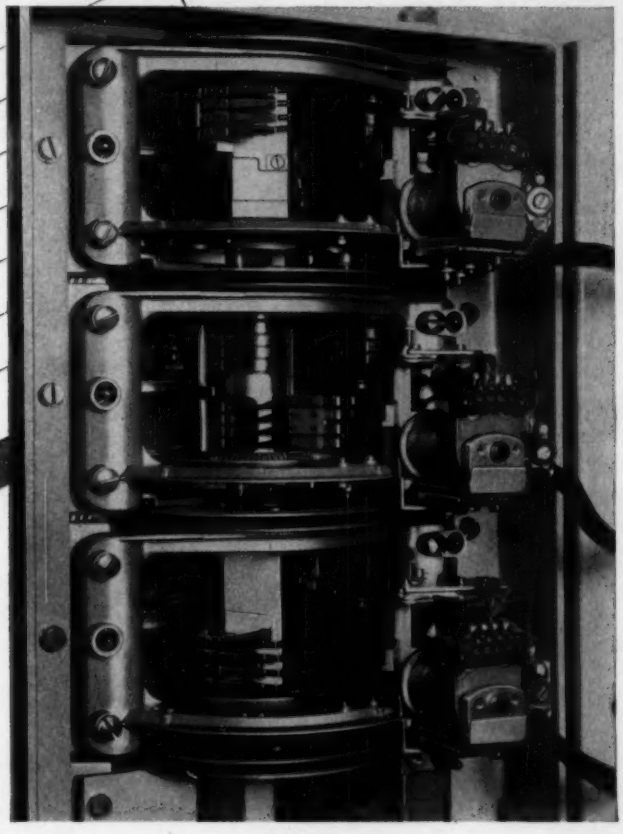

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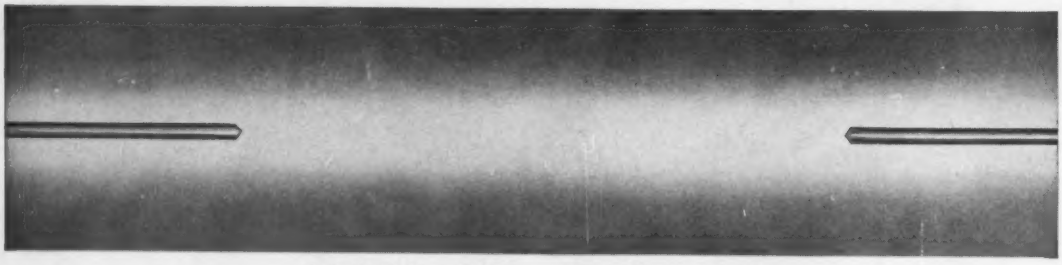

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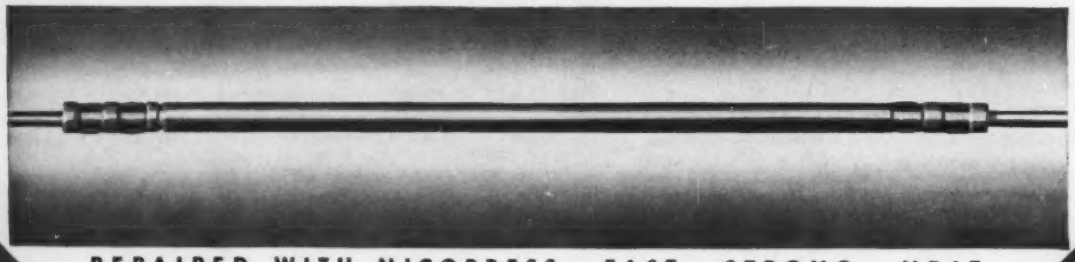

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